MARCH 1954

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FIREMEN

FIFTY-EIGHTH YEAR · NATIONAL FIRE PROTECTION ASSOCIATION

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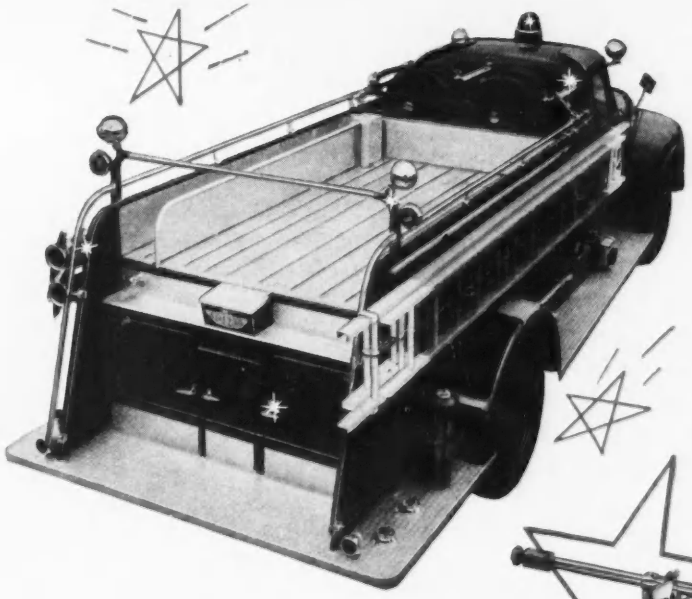

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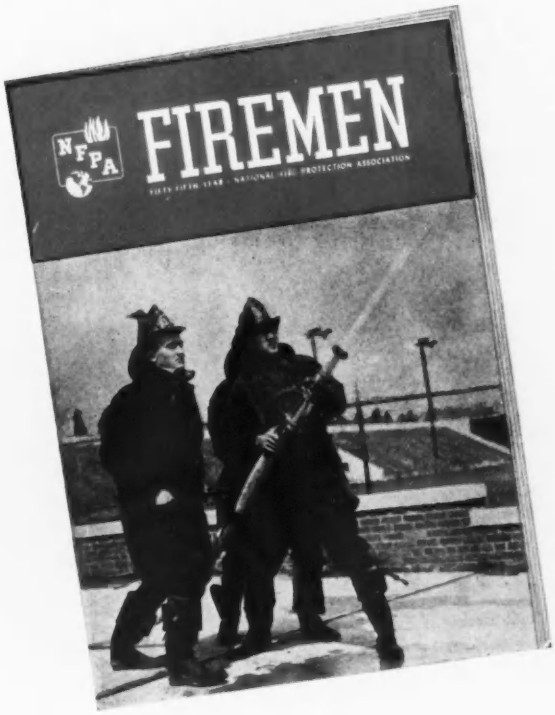
This is a good time to "poll" your fire fighters and to make certain that your department is receiving the full benefits of its membership in the NFPA. Here is an outline of what NFPA Fire Department Membership can bring to you and your fire department:



If you are a member of the uniformed fire service, membership will cost $12.50 per year and will include subscriptions to FIREMEN, to the monthly *Fire News*, to the NFPA *Quarterly*, and also a number of important publications which are made available to members from time to time. You will also receive a handsome membership certificate, suitable for framing.

If your fire department enrolls as a unit, or if you are a fire chief, then SIX (6) subscriptions of FIREMEN will be included in the membership, together with the above publications, for the same $12.50. If you desire to have more than six subscriptions sent to your department, then additional subscriptions will cost $1.25 each.

NFPA Fire Department Membership is available to individuals in the uniformed fire service, and to any paid, call, or volunteer fire department. The "six-copy" plan of membership is available only to chiefs of fire departments and fire departments as unit members.

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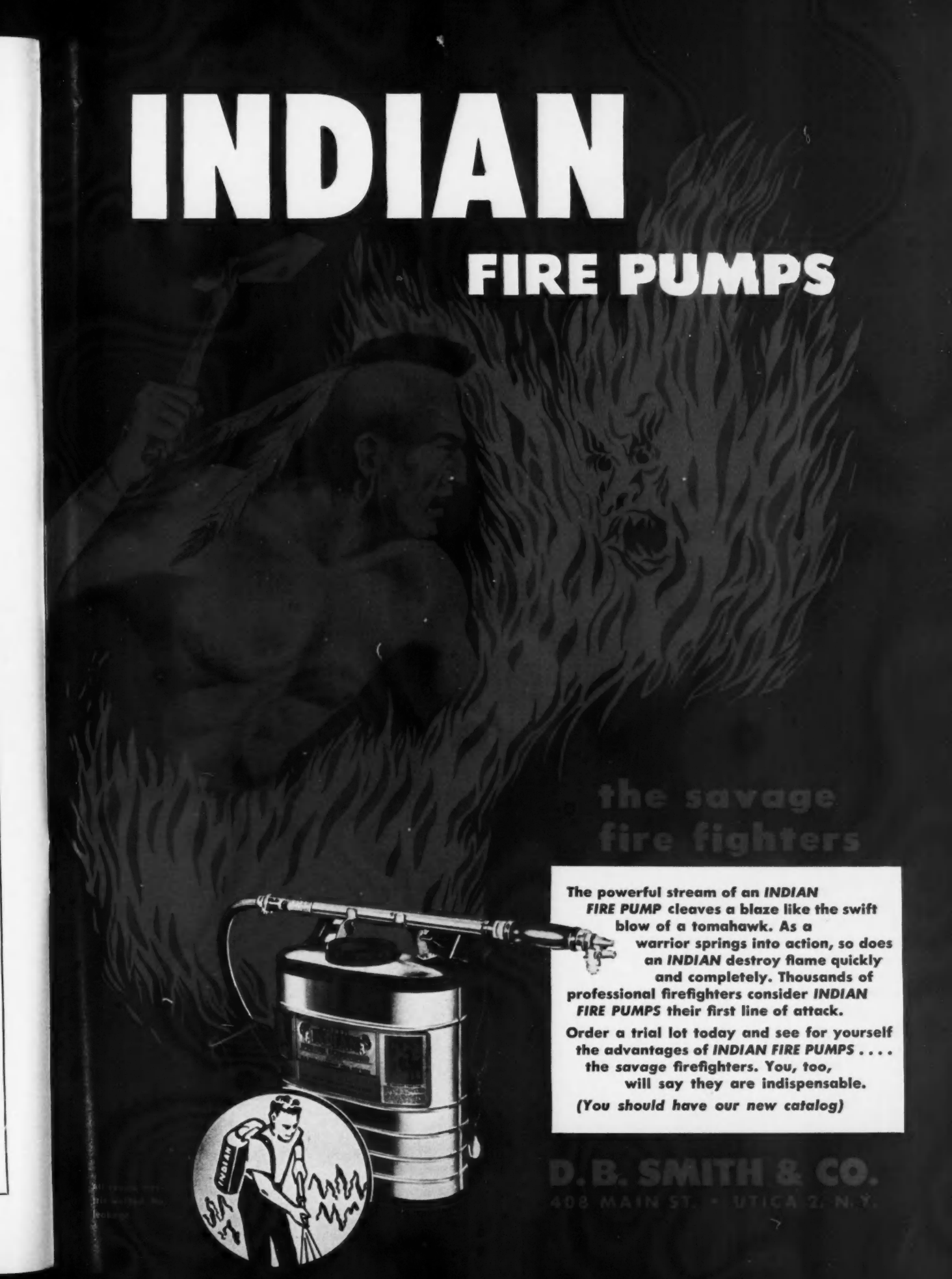

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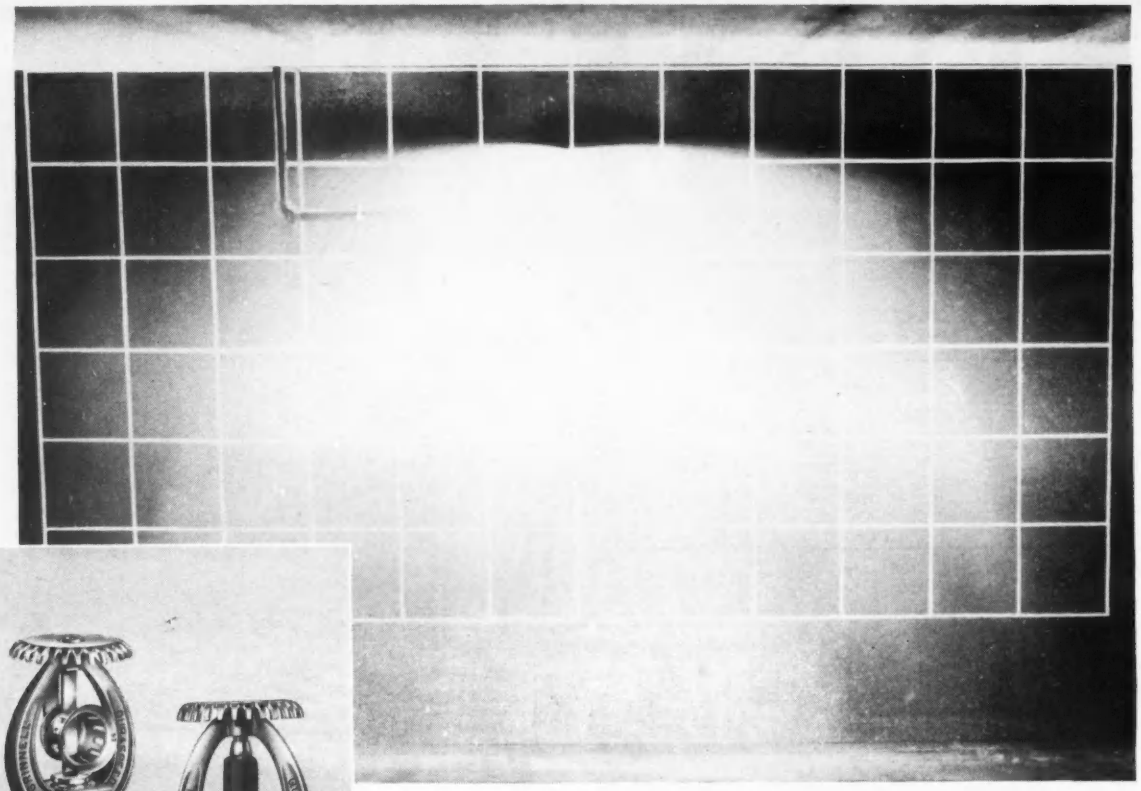

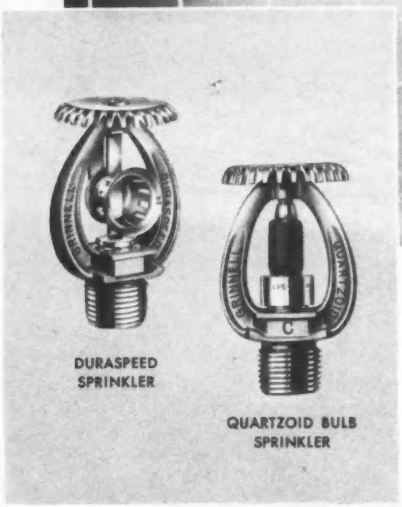

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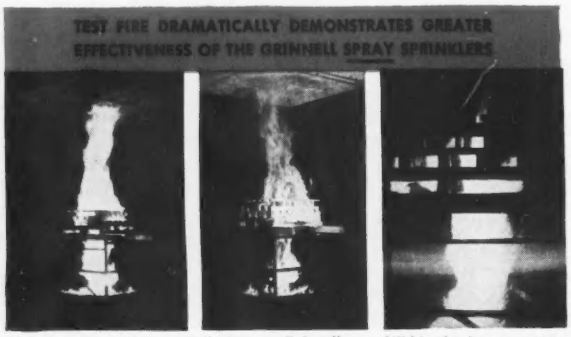

Test fire is under way. Under the wood crib is a torch fed by a constant flow of gasoline which prevents extinguishment of the fire. The vapors distilled off from both wood crib and gasoline torch feed the flames which lick ceiling panel.

Heat opens Grinnell upright spray sprinklers. Flame column starts to thin out and break up under the attack of fine sprays. Water vapor from these sprays dilutes the flammable fire gases to extinguish the destructive flames.

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Firemen

Volume 21 Number 3

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Published monthly for the fire service members of the
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Let's Get Going!

Fire service people invited to a fire workshop conference at the Olney, Maryland, Training Center of the U. S. Federal Civil Defense Administration (FIREMEN, January, 1953 issue, page 11) were addressed by a considerable number of the FCDA staff. Each of these staff members made the point that they were depending on the fire departments to lead the way in public support for civil defense. At the close of the conference, Henry Thomas, Fire Chief and Civil Defense Director of the City of Hartford, Connecticut, and President of the International Association of Fire Chiefs, responded. In substance, he said that what the FCDA members were doing was inconsistent with what they were saying.

Under the FCDA organization chart, the staff man handling fire matters has a too-involved chain of communication with the Administrator. It goes something like this: The director of fire services explains a technical point to a division head (a policeman). He, in turn, explains to an assistant administrator inexperienced in fire matters. The assistant administrator in turn passes the word to a personal assistant to the administrator and thence it gets to the top man. The administrator gets the subject matter sliced pretty thin.

The latest FCDA reorganization puts the experienced fire staff of FCDA still lower on the totem pole. A new office to handle both rescue and fire matters has been created, with the rescue official in charge. He has no fire background.

Chief Thomas and NFPA Chief Engineer Bond obtained an interview with Governor Val Petersen, FCDA Administrator, in the course of which they protested this move. Governor Petersen explained that it was merely an administrative reshuffle and he was obviously disturbed that the fire services should regard it as in any way evidence of lack of interest in fire matters. We think Governor Petersen has been badly advised. Thoroughly well-intentioned administrators often are, and there can be no doubt that the governor acted from the best of motives. He has a chance to reconsider an action which is an unnecessary affront to the very service on which civil defense must heavily depend.

The prestige of the fire services in their local civil defense organizations is affected by the relative position that is occupied by those to whom they look in the federal office. But it is only partly a matter of prestige. The fire fighters are organized into departments which are right now, at this hour and minute, ready to go to work. They are a real organization, not something like the CD rescue service which exists principally on paper and which is to be manned by amateurs. The fire services job will be hard enough without being bedevilled by direction from amateurs.

Civil defense programs in the United States have, one time and another, been associated with a lot of nonsense. If they are to be successful, they cannot stand much more.

Annual Meeting

Make plans now to attend the 58th Annual Meeting of the National Fire Protection Association. It will be held at the Hotel Statler in Washington, D. C., May 17–21. There will be many important discussions and addresses of particular interest to fire fighters and other members of the fire service. Fire department members in Maryland, Pennsylvania, Virginia and other nearby states have opportunity to hear the foremost authorities in the fire protection field discuss problems of particular concern to the fire service. A preliminary program will be published in a forthcoming issue of FIREMEN.

Cover Picture

This month's cover (*Wide World Photo*) pictures the intense heat that was generated during a department store fire in Zion, Illinois, on February 7. Damage was estimated at $500,000 as the fire involved buildings on both sides of the main street in the heart of the business section. Apparatus from 30 communities responded on mutual aid assignments. For another view of the fire area see page 21.

Making Your Maintenance Dollar *Go Further*

By Hubert Walker, Manager, Motor Fire Apparatus Sales Engineering, American-LaFrance-Foamite Corporation, Elmira, New York.

From a paper presented at the Training Course for Municipal Fire Chiefs conducted by the Ontario Fire Marshal's Office at the University of Toronto.

THE cost of fire department operation is steadily increasing, which is bound to occur with the upward trend of prices for most commodities and services.

Equipment maintenance cost is one of the necessary items that must be included in every fire department budget. The fire chief is looking for any way to decrease such cost without loss of serviceability or dependability of his equipment. This discussion relates to fire apparatus and the importance of preventive maintenance as a means of reducing this cost.

The following is a list of items that must have regular attention to accomplish this purpose. This listing is not complete to the last items requiring service, but does cover the majority of items for checking:

(1) Cleanliness
(2) Check batteries
(3) Check engine oil level
(4) Clean or replace oil filter cartridge
(5) Check radiator water level
(6) Tighten cylinder head bolts
(7) Check fan belt and generator belt for proper tension
(8) Check spark plug gaps
(9) Check ignition wires and terminals
(10) Check distributor points
(11) Check electric system for:
  (a) proper generator charging rate
  (b) check voltage regulator
  (c) check all lights and switches
(12) Clean air cleaners
(13) Add oil to steering gear
(14) Check all steering connections and grease
(15) Check front wheels for proper toe-in
(16) Check tire pressures
(17) Oil and check relief valve or governor
(18) Oil pump bearings (when specified by manufacturer)
(19) Oil change-over valves
(20) Run dry vacuum test on pump
(21) Oil throttle and governor control linkage
(22) Check clutch adjustment
(23) Check road transmission oil level
(24) Check pump transmission oil level
(25) Oil discharge gates and shutoff valves for nozzles
(26) Grease universal joints
(27) Check oil level in rear axle
(28) Check relief valve setting on hydraulic system of aerials
(29) Check hydraulic oil level
(30) Check aerial ladder cables and pulleys
(31) Inspect all ladders for:
  (a) loose rungs
  (b) loose rivets
  (c) damage to ladder from accident or heat

OUR first item "Cleanliness," is also the most important. A dirty engine is almost invariably a sign of lack of maintenance. It costs nothing but a little elbow grease, but it pays real dividends. Here are some of the effects of leaving dirt under the hood:

(a) Increased gasoline consumption due to partly clogged air filter.
(b) Increased carbon in engine from excess gasoline use.
(c) Increased tendency to oil sludge formation and bearing corrosion.
(d) Increased cylinder and piston ring wear.
(e) Loss of power due to electrical leakage on ignition wires and plugs.
(f) Spark plug fouling.
(g) Sluggish throttle and governor action.

An engine gives off oil vapor from the breather action. This oil film is distributed over the engine exterior and all surfaces under the hood. Road dust and dirt then adhere to form a sticky residue, contributing to increased maintenance cost and faulty operation of the truck. See that the apparatus is thoroughly cleaned at least once each month. (Oftener, if the number of times the apparatus is used warrants it.) This practice will save you many maintenance dollars.

Number (2) item is checking batteries. This is a weekly requirement that must be followed if you are to have reliability and get the maximum life from your batteries to reduce your maintenance cost. A fully charged battery will in approximately thirty days discharge to a point that it will not turn the engine over for starting. Check it each week for proper water level and check with a hydrometer for proper charge. The specific gravity should never be below 1.225 and preferably read 1.250 to 1.270.

Low water level leads to plate sulphation which reduces the ability of the battery to hold a proper charge. Use only distilled water — never hydrant or well water as such water contains metallic particles that will shorten your battery life. Observance of these recommendations will make your maintenance dollar go farther and give you more dependable equipment.

When apparatus is used not more than twice a week, batteries should be connected to a station trickle charger.

NUMBER (3) item calls for checking engine oil level. This is an important maintenance task to be done after each or every run. When oil is to be added, either to bring the level to the proper reading on the dip stick, or when an oil change is to be made, the proper grade and type of oil is required. Be sure you use only oil made by a reputable oil company. Reclaimed oil is not acceptable or approved. Oil purchased on a price basis to an S.A.E. viscosity rating only, will cost you in engine maintenance a hundred times the saving in cost as compared to a quality oil.

Drain oil when the engine is hot. The majority of engine manufacturers may only give you recommendations on S.A.E. viscosity. Viscosity is the measure of the relative fluidity of a liquid at some specific temperature. Engine oils are given a relative rating number when tested at 100° F., 130° F., or 210° F. This is determined by heating the

oil to one of the above temperatures and measuring the time required for a given volume (60 cc) to pass through a given size small orifice. This is the Saybolt test. This test does not in any way indicate the stability of the oil, its resistance to breakdown under load and heat conditions, its rate of oxidation, its oiliness, and other vital characteristics.

Until 1947 engine lubricating oil was sold only by S.A.E. viscosity rating. The American Petroleum Institute (A.P.I.) then standardized on additional classifications which are: (1) Regular type. (2) premium type. (3) Heavy duty type. Regular type oil is produced for service in light to medium duty engines. It is a straight run mineral oil.

Premium type oil has oxidation stability and bearing corrosion preventive properties for use in engines where operating requirements of time, temperature and load are more severe than for regular oil.

Heavy duty oil has oxidation stability, bearing corrosion preventive properties, detergent and dispersant porperties to use in high speed Diesel and gasoline engines operating under heavy duty severe conditions.

On April 29, 1952 the A.P.I. approved a new system of service classifications and designations, which are to supersede those just given. The new classifications are not yet in general use, but within another year should be available. These new classifications are:

ML — For gasoline engines operating under light and favorable service conditions. For use in engines having no design characteristics sensitive to deposit formations.

MM — For gasoline engines operating under moderate to severe conditions. This oil has additives to improve viscosity index, oxidation stability, preventives for bearing corrosion and problems of deposit control.

MS — For gasoline engines operating under severe conditions where there are special lubrication requirements due to design, high temperatures, fuel problems or unfavorable operating conditions.

There are also two classifications (DG and DS) for lubricating oil for Diesel engines. As fire apparatus does not generally use Diesel engines, we will omit these from our discussion.

An additive is a chemical compound added to a straight run mineral oil to either impart new properties to the oil or improve the properties already possessed by the oil. All lubricating oil additives may be divided into two classes:

(1) Those added to an oil to improve the physical properties such as viscosity index, pour point, film strength, rust protection and foaming characteristics.

(2) Those which are useful for their properties as anti-oxidants, anti-corrosives and detergents.

THE major cause of oil deterioration is oxidation. Any lubricating oil which is exposed to air at any temperature will eventually oxidize. The length of time before this takes place and the extent of oxidation depends on a number of factors, the chief of which is temperature. Metal particles in the oil as a result of wear also affect the rate of oxidation. The products of oxidation are largely acid, which ultimately produces bearing corrosion. Prolonged oxidation results in sludge formation which is often the cause of plugged oil lines or passages and screens. Varnish is formed on pistons, rings, and connecting rods.

For each gallon of gasoline burned about a gallon of water is produced. In a hot engine most of this passes out the exhaust in the form of vapor.

Engines idled cold, or started once a day at each shift change and not allowed to run until the water temperature is approximately 150° F. will have vapor condensing on cold cylinder walls and scraped into the crankcase by action of the piston rings. Some vapor reaches the crankcase directly as the result of piston blow-by where it also condenses. Moisture also enters through the breather.

Over-choking can also be a contributing factor in oil dilution and breakdown. Some dust and dirt also enters through the carburetor air intake even though air filters are used.

We suggest a careful reading of an article "Make It Easy For The Engine," in the October, 1953 issue of FIREMEN. (See page 13, this issue) NOTE: *The oil "Mil-0-2104" is a military (U.S. Army) classification for a detergent type oil which we classify as Heavy Duty or M.S.*

To provide an improved oil certain additives are provided to reduce these deteriorating effects. These additives are:

(1) Anti-oxidant — To increase the resistance of oil to oxidation.

(2) Anti-corrosive — To decrease or prevent bearing corrosion.

(3) Viscosity index improver — To get easier cold weather starting and better film strength at high temperature under full load conditions.

(4) Pour depressant — To have oil flow more freely at reduced temperature.

(5) Extreme pressure agent — To impart high load carrying properties to lubricant.

(6) Detergent — To prevent oxidized oil from becoming insoluble and depositing on engine parts.

(7) Dispersants — To keep the products of oil decomposition in suspension in oil.

(8) Rust preventives — To provide adhesiveness on metal surface.

(9) Foam inhibitors — To break up foam quickly and cause it to disappear.

We in the fire service are required to have a knowledge of the type of oil best suited to fire service needs. The first requirement is to always use an oil refined by a reputable company. Second, the oil selected for use should be the proper S.A.E. viscosity rating. Third, the oil should be either premium grade, which will have some additives or MM grade for moderate to severe operating conditions.

Fourth, avoid the use of heavy duty or detergent oils except under these following conditions:

(a) If the equipment is new and just going into service, or

(b) If the engine has been completely overhauled and is clean and free from all oil deposits from previous use.

If you have not been using a detergent type oil, the use of this oil will completely free all carbon and oil deposits which will so load the oil in circulation that clogged oil lines and pump strainer screens may produce engine failure. The use of a detergent oil except as outlined, in (a) or (b) will void the engine manufacturer's guarantee.

IN 1950 the Society of Automotive Engineers (S.A.E.) adopted a new viscosity classification. The 130° F. test was dropped completely and a 0° F. rating was substituted. Engine oils with viscosity rating at

210 F. are: SAE 20, SAE 30, SAE 40, and SAE 50.

Three new classifications, 20 W, 10 W, and 5 W, were added, by test at 0 F.

Note that all 0 F. viscosity rated oils carry the "W" symbol.

If you are using SAE 20 oil in your car, 20 W is not the same, it is a lighter oil suitable for winter use. The following recommendations can now be made for good maintenance:

(a) Use an oil of reputable manufacture.

(b) Use oil of the correct S.A.E. viscosity number.

(c) Use oil of Premium or MM classification. If you have engines with hydraulic valve lifters, you are required to use oils of Heavy Duty or MS classification which are oils with detergent and dispersive additives.

(d) An oil with 100 or more viscosity index will insure easier starting and higher film strength and body under full load conditions. Oils with a lower viscosity index, regardless of grade will give harder starting in cold weather and will thin out more at high temperatures under prolonged heavy duty service.

Proper operating engine temperature, 160° F. to 175° F. is important at all times if full power is to be provided and sludging avoided.

Sludge formation is caused by a number of factors and conditions and we will mention a few:

(a) Engine operating too cold.
(b) Poor or improper grade of oil used.
(c) Oil changed too infrequently.
(d) Improper breather action.
(e) Water leak into cylinders or crankcase.
(f) Oil filter dirty.
(g) Worn piston rings.
(h) Metallic particles in oil.
(i) Too rich carburetion.
(j) Contamination by carbon, dust, etc.
(k) Terrain of operation.

Sludging is usually a combination of two or more of the above factors.

Frequent oil change is good economy maintenance practice. Most of the additives are consumed with use of the oil. The characteristics given the oil by additives are not retained over a long use period. Oil changes every four months are good insurance for low maintenance cost regardless of the type of oil you use.

(4) The oil filter performs a very essential function in the lubrication of the engine.

If the filter element is the replaceable type, a new element should be used every six months, or every other oil change. Be sure the filter base is thoroughly cleaned before installing a new element.

If the filter is permanent type, it should be thoroughly washed and cleaned at every oil change.

(5) The water level in the radiator should be checked after every alarm response, or drill practice. This is good maintenance practice. Low water level in the radiator is a "red flag" to look for:

(a) leaking at gasket connections, check bolts for tightness.
(b) loose clamp on hose.
(c) loose cylinder head or valve cover.
(d) water pump packings require readjustment.
(e) leak in radiator core or tanks.

The cooling system should be inspected to be sure there are no leaks before anti-freeze solution is added in the Fall of the year. Where anti-freeze solution is in the cooling system, check the level when hot. The anti-freeze solution (ethylene-glycol type) expands in volume as it is heated. If added when cold, the solution will be lost when the engine warms up.

(6) Cylinder heads bolts should be tightened at least once each year. Such a practice will protect your engine from blown or burned gaskets, and water leaks into the cylinders and crankcase.

Modern engines with higher compression ratios use cylinder head gaskets with steel grommets around the cylinder bore or combustion space for higher heat resistance. The steel is not as soft or ductile as the copper grommet formerly used, making it more important for at least an annual check on the tightness of the cylinder head bolts. The check period should preferably be just prior to adding the anti-freeze for the winter months.

(7) The fan and generator belts should be checked for proper tension at six month intervals. Belts too tight will cause rapid belt wear, and stretch, also add excess loads to fan and generator bearings. The proper tension should permit moving the belt about ½ inch to 1 inch with ordinary hand pressure applied midway between the two pulleys. The amount of deflection will vary according to the distance between pulleys. Belts too loose will slip and cause engine overheating with the fan running too slow. Loose belts on the generator drive will produce low output without sufficient charge rate to maintain batteries. It takes little time to check or adjust the belts, but it helps save those maintenance dollars.

(8) Spark plugs should be regularly checked at least once each year regardless of mileage or hours of operation. Inspect each one carefully for evidence of fouling. Such evidence can indicate worn piston rings, overboiling through the intake valve guides, or incorrect carburetion.

If the porcelain is chipped or cracked replace with a new plug.

If the center electrode is burned off center, replace the plug with a new one.

Always check and reset the gap if necessary to have correct gap as specified by the motor manufacturers.

If the spark plug gasket is compressed solid, use a new gasket.

(9) Checking ignition wires for evidence of chafing or cracking of the insulation at least once a year is important. Replace with new cable any wiring showing these defects. This will contribute to easier starting and smoother power from the engine. All terminals must be tight and free from corrosion.

(10) Checking of distributor points should be done at least once each year. Check first for pitting of the contact faces. If these can be filed to seat squarely, they need not be replaced. Check the gap with the points fully opened by the cam. Set correctly according to the manual. Much starting trouble could be avoided if more attention were paid to this important unit.

(11) Periodic checking of the complete electrical system is good maintenance practice. Electrical equipment failures usually occur at night just when they are needed most. An annual check of the voltage and current regulators for proper setting will pay dividends in more dependable operation.

(12) We have already discussed the effect on engine performance when air cleaners are not kept clean and free from grease and road dirt.

(13), (14), (15) and (16) These

items are essential to safe and easy control of the emergency fire apparatus. Longer tire life is also obtained with a monthly check of these items. The front wheel toe-in should be checked at least once each year.

(17) Oiling of the relief valve or governor is frequently neglected until the unit no longer functions properly. All moving parts should be cleaned and oiled or greased every thirty days.

For those parts not in contact with water, oil with a light oil, S.A.E. 10 or 10W.

For those moving parts in contact with water, use a light waterproof grease, Lubriplate 210 or equivalent.

(18) and (19) Lubricating pump bearings and change-over valves are standard maintenance operations usually done after each pumping use.

(20) If your operations require drafting water for fire fighting in some of the areas you are furnishing fire protection, check the priming system every thirty days with a dry test.

If your normal operation is from hydrants, a dry test every six months will suffice.

With all blind caps in place on suction inlets and discharge outlets, all drain valves closed, and churn valve closed if a relief valve is used, operate the primer to exhaust the air from the pump. The vacuum should be not less than 22 inches (mercury) and the pump should hold this vacuum with a drop not to exceed 10 inches in ten minutes:

If the rate of vacuum loss is higher, all gaskets, pump packings and valves should be checked and the leak eliminated.

(21) Cleaning and oiling all throttle and governor linkage every three months will insure smooth operation. Use a light oil S.A.E. 10 or 10 W. Sticky or dirty governor linkage will cause a lag in operation with high pressure rise.

(22) Checking clutch adjustment every three months is a very quick operation and is good operating insurance. The clutch pedal should travel not less than one inch before clutch release actually starts. The clutch should be fully released before the clutch pedal contacts the stop. If the clutch pedal starts releasing the clutch as soon as it is moved, you are lucky if the clutch is not already slipping. Any clearance of less than one inch movement to start a release, calls for immediate adjustment if a failure is to be avoided.

(23), (24), (25), (26) and (27) These items are routine maintenance operations and the frequency for each is usually given in the manufacturers operation and maintenance manual.

Most rear axles in fire service use are spiral bevel or hypoid type. The hypoid axle is spiral bevel, but the center of the pinion shaft is not in line with the center of rotation of the ring gear. The pinion gear centerline is above or below the center of rotation of the ring gear. The reason for the hypoid axle is to secure a longer tooth contact between the pinion and gear. This design permits carrying heavier loads through the gears. This design introduces a sliding as well as rolling contact of the gear teeth. To prevent scoring of the face of the teeth, it is necessary that lubricants of the "extreme pressure" type be used. "EP" (extreme pressure) lubricants are mineral oils to which certain additives or compounds have been added to permit the lubricant to carry heavier loads without scoring the faces of the gear teeth. These "EP" lubricants may be specified as SAE 140 SCL Oil, or SAE 90 SCL oil, or SAE 140 EP oil. The "SCL" designates a certain combination of additives, sulphur, chlorine and lead.

These lubricants are frequently recommended for transmission gear use. Another trade designation for this type oil is "Multipurpose Type Gear Lubricant."

(28) The relief valve setting on a hydraulic type aerial ladder should be checked for proper pressure setting at least every six months. This practice will insure that proper pressure is available for aerial ladder operation. Any plugging of the strainer in the hydraulic pump suction line or air in the lines will be immediately apparent. This will insure smooth control with adequate hydraulic pressure.

(29) Checking the oil level in the hydraulic oil tank should be routine every three months and the hydraulic oil changed every six months. This practice is necessary if dependable operation is to be obtained. Oil in the hydraulic system, like engine oil, will oxidize, become contaminated with metallic parts (wear) and water (condensation due to temperature changes), if the oil is not drained at regular intervals (six months). Plugging of the strainer may occur which will make the ladder operation sluggish or even fail. Metallic particles carried in the oil stream may lodge in the relief valve holding the valve off the seat, making it impossible to build up sufficient pressure to operate the aerial ladder. These metallic particles if not eliminated by oil changing may score the raising cylinders and packings, leading to ladder drift and costly repairs. We cannot emphasize too strongly that proper lubrication and oil changes in engines and other units is the cheapest and best maintenance dollar saving practice you can devise.

(30) All cables and pulleys on aerial ladders should be given inspection every six months. The cables should be checked for evidence of worn or broken strands. Broken strands are dangerous to personnel and eventually lead to cable failure. Where broken strands are found, the cable should be replaced. All cables should be coated lightly with a proper lubricant. We recommend the Roebling wire rope lubricant which can be obtained at most any mill supply store.

Check all cables for proper adjustment. Check pulleys to be sure the inside faces of the "V" are not scored or grooved. Pulleys with deep grooves or scoring should be replaced as this condition will rapidly fray and damage a cable.

(31) Visual inspections should be made of all ladders used at a fire for evidence of damage to the rails, loose rungs or loose rivets. We refer you to "Fire Service Ladders" published by *Fire Engineering*, and to the NFPA Booklet "Handling Hose and Ladders." The NFPA will soon publish standard (No. 193P) "Testing Aerial Ladders."

"Make It Easy for the Engine"

A reprint of the popular article on maintenance of fire apparatus engines, authored by Battalion Chief Robert Ely, Master Mechanic, San Diego, California, Fire Department. Price 10 cents per copy.

Write to

National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Let's Look at Fire Helmets

Members of the fire service are used to reading advertisements of leading fire equipment manufacturers in FIREMEN *and other publications. Many of these manufacturing concerns have interesting "behind-the-scenes" histories which reflect important changes and developments of fire equipment through the years. This first of a series of articles discusses Cairns & Brother, Incorporated, makers of helmets for fire fighters since 1836.*

PERHAPS the most valued piece of equipment for any fire fighter is his helmet. From the moment of his first fire combat he realizes the importance of this head covering, which can save his life from falling timber, bricks and other objects, in addition to protecting him from blasts of heat so often encountered. As service years pass the fire fighter is apt to use his helmet somewhat like a diary in Braille, touching the various nicks and scars and recalling those moments which meant "near misses" to his life safety.

Like many other pieces of fire fighting equipment, the fire helmet has an interesting history. Its design and construction are based upon comfort and utility, yet preferences of individuals and fire departments bring variety of shape and material. This variety is obvious when we consider the history and activities of one manufacturing concern.

In the United States one of the foremost manufacturers of fire helmets is Cairns & Brother, Incorporated, Clifton, New Jersey. For 118 years this company has maintained an expanding plant which in 1946 was moved from New York City to 854 Bloomfield Avenue, in Allwood, a suburb of Clifton. Heading the concern is Edward Cairns, son of Irving Cairns, who was one of the original founders. The corporation was started in 1836 by Henry T. Gratacap, a luggage maker; Irving Cairns and his brother Edward and their two uncles.

A labor force of less than twenty-five men turns out helmets to meet the demands of fire departments in some 7,000 municipalities throughout the United States, in fourteen countries in Latin America and some European countries. Included in the list of accounts are fire departments of New York City, Chicago, Boston, Washington, D. C., Philadelphia, San Francisco and New Orleans.

Portion of the office and display room of Cairns & Brother, Inc.

(*At left*) Edward Cairns, President, Cairns & Brother, Inc., stands beside a carved, wooden statue of the company's trademark. This was made from solid oak in 1830 by a carver of figure heads for sailing vessels.

In order to service fire departments properly the Cairns' offices contain files of cards listing the fire companies of every client. A card for any fire company shows how many red, black and white helmets are used and details the lettering for the shields on the front of the helmets. This permits exact duplication of any helmet order when needed.

Some Cairns helmets are custom built. In New York City, for example, the company provides for the use of the fire fighters, a machine which measures head sizes. The patterns turned out by the machine are conforms of the heads of the firemen being measured. New York firemen, then, and many others, just send in the conforms and the helmets can be made to the exact sizes.

Average cost of a leather helmet to the fireman is $20, aluminum $15 and plastic $12.50.

THE general upsurge in prices during this century is reflected in the price of fire helmets, as in anything else. In 1900, for example, the leather headpiece cost between $4 and $5.

But way back in 1850 the company sold one leather helmet for $1,350.

The value wasn't in the leather, naturally. There were a few Tiffany diamonds and rubies on this distinctive hat. It seems that 104 years ago admiring friends agreed to present a bejeweled fire helmet to William B. Hunt of Confidence Engine Company, Sacramento, California. The helmet was embossed with fancy hand stitching and luxuriant with gold leaf design. Nothing has been heard of this fantastic headpiece since its presentation all those years ago. Mr. Cairns would like to have it in his collection.

The Company still produces some gaudy creations — that is the insignia on the helmets is a bit resplendent. These go to ranking firemen in Latin America who

prefer that the shield, which fits on the front of the helmet and whereon rank is designated, be noteworthy in decoration to say the least. Fire chiefs south of the border are fond of warm vibrant coloring and plenty of impressive gold leaf work.

IN THE old days too, the firm was devoted to service above and beyond the call of just sales. In 1882, for example, Irving Cairns published a book called, "The Fireman's Companion." The book contained advice and information on how to organize and operate a fire company and laid out for interested readers a sample constitution and by-laws. There were also instructions for drilling, for care of equipment, for raising funds for a fire company, and a chapter on that glorious presentation, the fireman's ball. This chapter makes amusing reading today. Here are some excerpts:

"A gentleman should not use his bare hand to press the waist of a lady in the waltz. If without gloves, carry a handkerchief in the hand. Nor should he encircle the waist of a lady until the dancing commences, and he should drop his arm the moment the music ceases.

"No gentleman should play the clown. Dancing a breakdown, making unusual noises, swinging the arms about, etc., are unbecoming.

"Any difficulty or misunderstanding should be referred to the floor manager, who's decision should be deemed final.

"No gentleman should enter the ladies' dressing room at a ball."

Helmets for honorary fire chiefs provide more chuckles for the firm than profit. Through the years Cairns says they have manufactured special helmets for such personalities as Ed Wynn, Harry S. Truman, Admiral Halsey, Kate Smith, Gil McDougald, New York Yankees and Rocky Marciano, present heavyweight Champion, who was made Honorary Chief of the Fallsburg, New York, Fire Department.

MANY other special-type helmets emerge from the factory such as polished aluminum trench helmets of World War I and World War II design, colored to order for organizations like the American Legion and Veterans of Foreign Wars. And there are protective helmets for skiers and for racing enthusiasts, motor boat or car.

But the leather fire helmet has maintained its popularity through the years. Because of its resilience to shock and the fact it can be re-conditioned, the leather helmet has found strong support through many fire departments.

Since 1904 the factory has also manufactured the aluminum helmet, and since World War II the plastic helmet. Although leather and aluminum are more costly materials, they still lead in popularity, but plastic helmets are coming into favor as improvements are developed.

Fire departments in New York, Boston, Chicago, San Francisco, Newwark and Jersey City prefer leather helmets, while Washington, Philadelphia and Albany fire departments prefer aluminum. Elizabeth, New Jersey tried plastic but went back to leather. In Canada, Montreal and Toronto use leather, while other Canadian fire departments are turning to plastic.

Present site of Cairns factory is 854 Bloomfield Avenue in Allwood. Recently an addition was made to the rear of this modern structure.

BACK in the early decades of the last century, the fire helmet was regarded as a showpiece, as more of an ornament than skull protector. Nevertheless, it was evolved on a functional basis, and was developed on useful as well as decorative lines.

In Europe, fire headgear follows the military pattern. French trench helmets set the trend in France and in Germany the hat resembles that World War I Prussian topper with the spike rising in the middle of it. The English style reminds one of the Roman gladiators.

The general contours of the American helmet have altered only slightly in the last hundred years. A major modification was pioneered about twenty years ago and the present Mr. Cairns inspired it after consultation with the New York Fire Department.

Machinery, some of it invented and perfected by Mr. Cairns, does the work of scores of hands. Machines that sew have replaced hands that sew. A plastic helmet is formed in eight minutes. Sheets of glittering, light aluminum are moulded under a powerful air hammer in the shape of a helmet, in seconds. From an ingenious hydraulic machine, invented and patented by Mr. Cairns, the seamless crown for a leather helmet emerges to await the next step in its development.

One steer provides about fifty square feet of leather and it takes four square feet to make a fire helmet, and a special tanning process is required for this use. The leather is soaked in a fluid to toughen it. Once fashioned, the leather helmets are stored in the shop for at least two months for seasoning and to achieve their full degree of toughness.

View of the interior of the factory.

(*Left*) Deputy Chief George B. LeVasseur and Chief Sam Angell of the Cumberland Hill Fire Department show the new "fire directory."

Chief Angell points to a light on the directory board which has been actuated by the insertion of the plug into the appropriate position.

Fire Directory in Cumberland Hill, R. I.

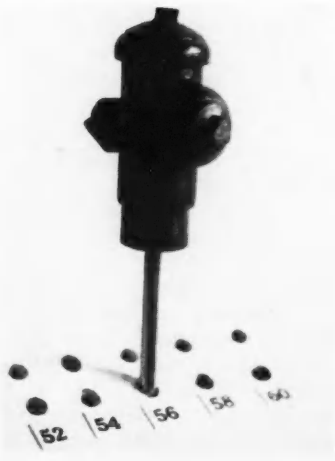
Photos by Andy Palmer, "Woonsocket Call"

WHEN an alarm hits in the Cumberland Hill, Rhode Island, Fire Department, fire fighters can spot the fire location by glancing at the new "fire directory." Built by Chief Sam Angell, Deputy Chief George LeVasseur and "Chick" Riendeau, the directory has a map of the entire fire district with every hydrant identified by number. Whoever receives the alarm merely inserts a plug in the form of a miniature hydrant into the appropriate position at the bottom of the directory. A red bulb lights at the corresponding hydrant on the map, providing instant identification of the fire location.

The directory stands near the door of the fire station where it can be seen easily by volunteers responding to the alarm. It is particularly useful to new members of the department who may not be familiar with the names of the street in the district. With every street in the district identified the map also indicates the best route of response to any fire call for any person unfamiliar with the fire department's procedure.

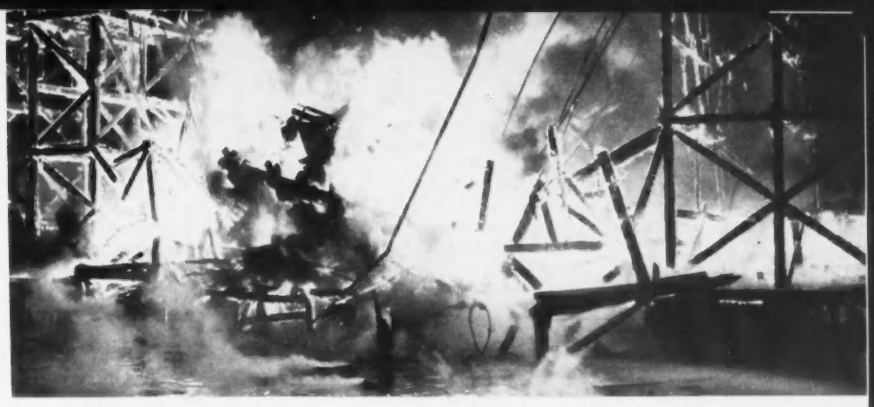
(*Below*) Deputy Fire Chief LeVasseur adds a new light to the panel board. Note that the wiring circuit makes every terminal easily accessible.

(*Below*) Miniature hydrant plug which is inserted into numbered receptacles at base of directory to actuate appropriate hydrant light.



Fires in the News

Passaic, New Jersey, January 31. (*Wide World Photo*). Passaic fire fighters almost were trapped in this church when the balcony and large blocks of masonry collapsed during a fire which resulted in a $155,000 loss. Although a dozen firemen were taking lines into the church at the time none was seriously injured. Fire apparently had made considerable headway before it was discovered, and it spread through the 2-story brick wood-joisted structure which had a 100 ft. steeple. Six engine companies, two ladder companies and a rescue squad responded, while the City of Passaic Fire Auxiliary "stood by" in quarters.



Portland, Maine, January 24. (*United Press Photo*). Spontaneous ignition of soft coal was suspected as the cause of this estimated $500,000 fire which ruined a wharf, a trestle, 3 cranes and towers and a quantity of coal. The Portland Fire Department responded with three 1200 gpm, two 1000 gpm, one 750 gpm, and a 500 gpm pumpers; and 3 ladder trucks. The Portland fire boat and Coast Guard vessels were also used. An estimated 45.9 million gallons of water were used in extinguishment. Although previous experience had shown that the coal would heat, no temperature tests had been taken in recent months to determine whether the coal should be moved.

Newark, New Jersey, January 14, (*United Press Photo*). Although fire fighters used salvage covers with good results, rapid spread of fire and a collapsing ceiling caused major damage to this department store. The fire was discovered by a police patrol which sent an alarm by radio. The automatic detection system had been shut off some time in the past and open stairways and non-firestopped walls allowed rapid spread through the 2-story structure.

(*Below, right*) **South Bend, Indiana, January 18.** (*Associated Press Wirephoto*). An estimated $500,000 loss resulted in this unsprinklered 3-story brick, wood-joisted building. Six hours after a janitor had banked a furnace fire and closed drafts an explosion of incompletely burned gases of combustion wrecked the furnace and part of the chimney. Fire spread through non-firestopped walls through all parts of the building. A battalion chief suffered a fatal heart attack which was attributed in part to smoke inhalation. He was the only one of a crew attempting to enter the basement who did not wear self-contained breathing apparatus.

Boston, Massachusetts, February 1. (*United Press Photo*). Combustible stock, lack of interior fire detection or extinguishing systems, and careless maintenance of an oil burner resulted in a $160,000 loss. Thirty-six fire companies responded to multiple alarms including Boston, Chelsea and Brookline units.

(*Below*) **West New York, New Jersey, January 4.** (*Photo by B. J. Stevens.*) Fire companies from Union City, North Bergen, Weehawken and Hoboken assisted West New York fire fighters during this $250,000 fire. The building housed mercantile establishments and a number of apartment dwellings. Fire fighters assisted members of 49 families from the building by fire escapes from the front and rear.

History of Hose Coupling Standardization

By Warren Y. Kimball, Manager, NFPA Fire Services Department

WE ARE frequently asked how the American National Hose Coupling Standard was developed. The story is interesting, and it began more than 80 years ago.

Following the Chicago Conflagration of October, 1871, and the Boston Conflagration of November, 1872, the National Association of Fire Engineers (forerunner of the IAFC — International Association of Fire Chiefs) met in Baltimore, Maryland. A resolution proposed by Chief Hill of Cleveland calling for a universal standard coupling for fire hose and fire hydrant was adopted. The convention adopted as the standard the present American National Standard of 7½ threads to the inch with 3 1/16 inches outside diameter of the male thread.

A number of fire chiefs upon return home persuaded their communities to convert to this standard. Unfortunately, there was in those days no standard-making organization such as the NFPA equipped to follow through on the project and encourage the desired uniformity, so little progress was made.

Two years later (1875) the same organization voted for a new standard which would provide a 2⅝-in. waterway, a 3⅛-in. ODM (exclusive of thread), and 8 threads to the inch. This proposal to have a larger coupling and waterway was reaffirmed in 1876, but in 1878 the committee dealing with the project reported that the larger coupling was impractical.

In 1879 a new standard was submitted, showing 3 7/32 in. ODM with six threads to the inch. This was adopted, but the matter lay dormant to 1883 when the same specification was again endorsed. The 1883 convention adopted a resolution urging state legislatures to adopt the 1879 proposal.

No further action was taken until 1890 when the fire chiefs appointed a committee headed by Mr. G. A. Landy, a hose salesman, to study fire hose threads throughout the United States. The next year the committee reported on the couplings in use in 1,339 fire departments. This showed threads ranging from 3 to 3⅛-in. ODM and with 7, 7½ and 8 threads to the inch.

IT WAS demonstrated with a model coupling that 70 percent of the hose in use could be readily connected using the original 1873 standard of 7½ threads to the inch and 3 1/16 ODM, and that with this coupling standardization of 2½-in. hose threads could be accomplished with a minimum expenditure of time and money. Accordingly, the 7½ thread, 3 1/16 ODM standard was again adopted 18 years after it was first approved. "The hose coupling proposition appears to have reposed in undisturbed quietude" to quote a 1912 report.

Confronted by 31 years of failure to get effective action and use of a national standard hose thread, the NFPA in 1904 sent a delegation to the 1904 IAFE convention to get joint action on a practical national standard hose coupling. The IAFE appointed Chief J. R. Canteberry, of Minneapolis, Minnesota, Chairman of a committee to work with the NFPA Committee headed by F. M. Griswold. Investigation of reasons why non-standard couplings were preventing effective mutual aid at major fires developed the fact that the difficulties experienced arose mainly from difference in dimensions of hose couplings or hydrant outlets, or because of differences in the shape and number of threads.

The question was whether to advise the adoption of a standard which would show extreme mechanical strength without reference to the preponderance of designs then in use; or to seek a coupling which would be in accord with the majority and also permit interchange with a large proportion of the couplings not exactly conforming to its dimensions.

Adopting the latter method as promising the widest acceptance, the committee brought the 1891 Landy report up-to-date and became convinced of the practical value of standard suggested in that report calling for 3 1/16 ODM and 7½ threads per inch.

It was also deemed wise to formulate specifications covering 3-, 3½- and 4½-in. hose couplings, the inside diameters of which were to be in conformity with the sizes named. More detailed specifications for all standard sizes are included in the specifications which were developed.

Having in mind the past failures due to lack of cooperation between interests vitally concerned, Mr. Griswold took the matter up with the insurance committee of the American Waterworks Association, which considered the proposed standard in detail and adopted it in May, 1905. The standard was adopted by the International Association of Fire Engineers at Duluth the same year, and was also approved by a dozen other organizations including the National Board of Fire Underwriters.

A REPORT in 1912 indicated that of 3,133 communities in the United States and Canada, 80 percent of the couplings listed were standard or close enough to standard to permit ready modification. Some 73 communities, the largest of which was St. Louis, had already standardized.

At the present time, it is estimated that approximately 90 percent of all the fire departments in the United States enjoy the benefits of American National Standard fire hose couplings for 2½-in. hose. Of the cities over 20,000 population, nearly 70 percent have standard thread and the record is better in the smaller communities where the recutting of hydrants and couplings is not such a major job and because many of the smaller departments have been organized since the standard was adopted.

In at least 24 states and in the District of Columbia substantially all of the major cities are using national standard 2½-in. hose thread. In several states including California and Massachusetts, standard thread for 2½-in. fire hose is a requirement of state law.

On the other hand, there are some states that have not yet faced up to the need for standardization or

(*Continued on page 24*)

Aerial "Water Bombing"

Based on a report of the Ontario, Canada, Department of Lands and Forests, submitted to FIREMEN by T. E. Mackey, Chief of the Division of Forest Protection. (*Official Photographs by R. Muckleston, Province of Ontario, Department of Lands and Forests.*)

FIRE combat in forested areas often necessitates control of fire in places which are practically inaccessible to fire fighters on the ground. Lightning frequently ignites wooded areas on hills and mountains which may require hours or days of walking and arduous movement of hose and equipment before fire fighters can apply water on the flames. Often such a forest fire spreads practically unchecked because there are not enough men and equipment for successful attack in the early stages.

Because of these possibilities the Forest Protection Division, Department of Lands and Forests, Province of Ontario, Canada, recently resorted to the use of aircraft and "water bombing" to control fire spread until men and equipment could be moved into action.

During periods of extreme fire danger, smoke chasing crews of rangers patrol the forested areas in aircraft which carry portable fire pumps, hose, tools, and a quantity of paper containers which can be used as "water bombs." If the occasion demands the bombs are filled at a lake or some other designated water point, then flown to the fire area and dropped. The paper containers burst upon contact with trees, brush or ground, and scatter water in all directions, moistening vegetation and soil and providing tangible hindrance to the spread of fire.

THE water bombs have a reinforced wet-proof cardboard bottom and are constructed of two layers of kraft paper with a coating of adhesive latex between them. Before filling, the top of the bomb is kept unsealed with thin, waxed paper inserted to separate the latex. When filled the bombs contain 3½ gallons of water and weigh 35 pounds each.

A special conveyor, equipped with rollers, is used for launching the bombs from the planes. Measuring 6 feet 8 inches long and weighing approximately 50 pounds the conveyors are placed in the two-passenger planes and occupy the space between the pilot's seat and the opening in the plane used for aerial camera work. The conveyor is slanted towards the camera opening and the bomb load is held in place by a deflector plate.

Interior of the plane showing the conveyor rack and a bombardier placing the water containers. When properly filled the containers are cubical in shape. Rollers are 2.9 inches in diameter, 12 inches long and move on ball bearings. The conveyor has a rise of 1.4 inches per foot, but in discharging the bombs the bombardier must give a starting push. Each plane carries 17 to 24 bombs. On larger fires a number of planes make bombing runs to "blanket" the target area with water.

Here is a water bombing attack on a test area. Note the even distribution of water containers as they drop towards the target. Smooth operating conveyor rollers and proper action by the bombardier are essential to successful release of the containers during bombing runs.

Tripping of the plate to discharge the bombs may be accomplished from the pilot's seat.

On such bombing runs a "bombardier" accompanys the pilot and loads the conveyor and pushes the bombs when the attack is being made. The bombardier's work is quite strenuous, and it is necessary to alternate his job with that of one of the men who are filling bombs at the water point.

APPROXIMATELY 30 planes have been equipped with this special bombing equipment, and thousands of the water containers have been supplied for use in practice and on actual fires. When an attack on a fire target is made, the bombs are released in salvos of eight, landing 10 to 12 feet apart, depending on the height and speed of the aircraft. Normally, bombing runs are made at 200 feet with planes traveling at air speeds of slightly more than 80 mph. Target runs are made over the area from different directions, so that a crisscross effect of water distribution is obtained.

This type of "water bombing" has been found most effective on small fires such as occur when lightning ignites the forest area. It has also been helpful in controlling danger spots on large fires until necessary ground action becomes effective.

It is essential that contact between aircraft and ground crews be maintained. The Department of Lands and Forests has made excellent use of light portable radios for such communication. Important information that must be transmitted includes location and success of bombing attack, description of fire progress, and estimates of ground action necessary to retard the fire at any point.

Mary Elmer Lake Volunteer Fire Company

Shown above is apparatus of the Mary Elmer Lake Volunteer Fire Company (NFPA member) of Bridgeton, New Jersey. Headed by Chief W. R. Jess, this fire company of 35 members was organized in 1950 and protects 400 dwellings. Together with Hopewell Township Fire Department, this company covers an area of 38 square miles.

Members have painted all apparatus white and find this color distinctive for both fire fighters and motorists during night operation. Apparatus consists of a 500 gpm Mack rotary pumper with a 500-gallon tank and a 1500 watt generator. There is also a 500 gpm pump on a 1946 GMC chassis which members mounted and equipped from a wrecked piece of apparatus. The department has also constructed a tanker and equipped it with a centrifugal pump.

Officers of the department include President George Peterson, Chief W. R. Jess and Reuben Dunfee. There is a Ladies' Auxiliary of 20 members who cooperate in raising funds for equipment and for a new station house which the department plans to build in the near future.

A Way With the Stork

CAPTAIN Fred Badger of Rescue Squad 1, Providence, Rhode Island, Fire Department was given some useful equipment recently. Captain Badger during his career has delivered about a dozen new citizens while taking their mothers to the hospital.

In recognition of his exceptional ability and service, south Providence residents have presented him with a doctor's obstetrics kit. Rhode Island internes promised to keep the equipment up-to-date and sterile, since the squad makes frequent runs to the hospital accident rooms. Ten cylinders of oxygen were included with the gift. Presentation was made before a group of residents, several of whom credited Captain Badger with saving their lives or those of members of their families.

NFPA ANNUAL MEETING
Hotel Statler
Washington, D. C.
May 17-21, 1954

Ulster Hose Company No. 5, Ulster, New York

HEADED by Chief William A. Norton, this volunteer fire company (NFPA member) was organized in 1944 with 70 charter members. Original apparatus was a Civil Defense pumper mounted on a Chevrolet truck with a 275 gallon tank. Then in 1947 the members acquired a 500 gpm Mack pumper, purchased by the Commissioners of the fire district. In the same year a 30 x 60 ft. fire station of brick construction was constructed.

Another Mack pumper was purchased in 1951 and during the past year a 1,000 gallon tank truck was obtained. Also in 1953 the fire company added a new section to the

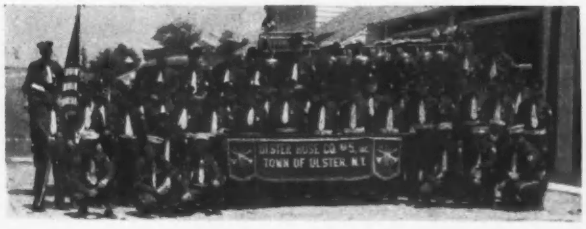
station which now has four bays for trucks and an upstairs meeting room. (See photo above.)

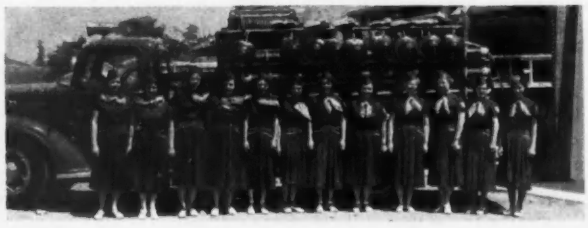
There is an active Ladies' Auxiliary whose members equipped the fire station kitchen and help to raise funds for the fire company.

Chairman Millard T. Davis heads the board of commissioners for the fire district. Other hose company officers are: President Edward F. Dingleday, Vice-President Al Kilmer, Secretary George L. Berry, Jr., and Treasurer Gerald Woodvine.

In July, 1953, the fire company was host to the 18th annual convention of the Ulster County Volunteer Firemen's Association.

(Below, left) Fire fighters of Ulster Hose Company No. 5. *(Right)* Members of the Ladies Auxiliary.





Helmets for a Hobby

A BOSTON fireman is making some popular miniature reproductions of fire helmets. Francis H. McDonough, Ladderman of Company 29, began his hobby with a wood carving of a fireman's helmet, lacquering it with realistic color. Other members of the department requested similar reproductions.

Now, as demand has increased, he is having moulds made by a statuary firm, then casts them in composition plaster, solid aluminum, and bronze. Ladderman McDonough then colors them and applies company numbers, insignias or wording suitable for testimonial gifts.

The helmets measure approximately 4½-inches long, 3 inches high and 3 inches in depth. So far they have been used by purchasers for paper weights and as gifts.

Readers interested in obtaining further information should write to FIREMEN, Box G, 60 Batterymarch Street, Boston 10, Massachusetts.

New Fireboat for Buffalo

THE Buffalo, New York Fire Department's Engine 20, Marine Division, recently acquired this new fireboat called "The Fire Fighter," to replace the 52-year old fireboat "Grattan." The Swedish iron hull of the "Grattan" was retained and permitted conversion to this new 118 ft. vessel which has four 2-stage centrifugal pumps manufactured by Dean Hill Pump Company of Indiana. Each pump delivers 3,750 gpm at 160 lbs. pressure. The boat is powered by two Caterpillar Diesel marine engines which have power take-offs for pump operation. Radio equipment is a 60-watt Motorola transmitter on fire department frequency and a 30-watt RCA transmitter on Coast Guard frequency.

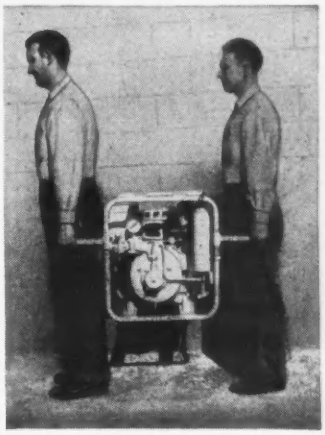
Aftermath of Fire in Zion, Illinois

Complete burnout resulted from the department store fire in Zion, Illinois, shown on this month's cover. (See page 9.) Remains of the building are in the white area at lower left center of this picture. At right, directly across the street, is a curtain factory which also was destroyed when it became involved. However, closeness of other exposures on this side of the street indicate that fire fighters made a good stop despite strong winds. *(Associated Press Wirephoto)*

Hale Type FZZ

Fine For Relaying to Major Pumper . . . .

Easily Carried by 2 Men



Chief Leon Arnold of Newellton, La., writes . . . .

We have received from you your portable Pump, Type FZZ, which we are thoroughly satisfied with. We have only had to use it once since our purchase in September of last year, but it did a big pump job for 1½ hours through a 300 ft. line of 2½-inch hose branching off in a "Y" to two 1½-inch lines, 150 ft. each.

We carry this unit on our 500-gallon pumper to use in places where we can not get near enough to water. Two men can easily carry it any place.

We recommend the Hale FZZ Portable Pump for any Fire Department.

Below — FZZ Relaying through Major Pumper.

The Hale Type FZZ portable fire pumping unit pictured at top can be easily carried by two men to source of water which truck cannot reach, for refilling booster tank or for fighting fire direct. Unit is also available mounted on two truck-type wheels or on rubber-cushioned steel channels.

The unit can be mounted on virtually any apparatus, making it possible to fight fire while apparatus is in motion, using booster tank for source of water.

Capacity of FZZ is 60 G.P.M. at 90 lbs. pressure: 150 G.P.M. at 30 lbs. pressure. Provides two capable fire streams through 1½" hose lines, using ½" nozzles.

Note: Discharge Adapter can be supplied for use with 2½" hose.

Ask for demonstration No obligation

Write today for FZZ Folder to

HALE FIRE PUMP COMPANY

CONSHOHOCKEN, PA.

Fire Pumps in All Standard Capacities

Symbol of Quality-Service-Protection for the modern firefighter

The famous Midwestern Manufacturing Company trademark is your guide to the finest protective clothing that money can buy — garments that are specifically designed to help safeguard your men's life on every run — enable them to use their equipment to the fullest advantage.

★ Exclusive Safety Features
★ Tailored for Comfort
★ Softer, More Pliable Materials
★ Made of Natural Rubber

We manufacture both rubber and fabric fire coats. In our vast selection of materials you will find the type of fabric exactly suited to your climate and needs. For complete information on our full line of firemen's protective clothing, see your Midwestern dealer. A letter to the factory will also bring you literature and material samples for your inspection.

MIDWESTERN MFG. CO. Mackinaw, Illinois
Manufacturers of the Famous **MACKINAW Coats**

CAIRNS

14 STYLES TO CHOOSE FROM

PRICES TO SUIT ALL BUDGETS

LEATHER
The "NEW YORKER" — No. 5A

REGULATION OR DROP BRIM

PLASTIC
The "CLIFTON" — No. 900

ALUMINUM
The "SENATOR" — No. 350

Be sure to read the Cairns "Story" on Pages 14 and 15.

Write for Catalog 340

Cairns & Bro., Inc. Allwood, Clifton, N. J.
Outfitters to Firemen Since 1836

HELMETS

JAMES G. Kay, Assistant Sales Manager of V. H. Blackinton & Co., Inc., of Attleboro, Massachusetts lost his life in an automobile accident in Exeter, N. H. recently. He was well known throughout the fire service. He started his career in 1941 when he became production superintendent of the badge department, following his father who had worked in the firm for almost 50 years.

In 1950 he became assistant sales manager of all of that concern's police and badge sales, and through this position he made many contacts in fire departments throughout the United States.

Useful Portable Saw

JOHN E. Haley, Chief Instructor of the Utica, New York, Fire Department forwarded this picture of a useful portable saw. The saw, made by the Porter Cable Tool Company of Syracuse, is 14 inches long and weighs only 18 lbs. It operates from a portable generator of 1200 watt capacity. Chief Instructor Haley reports that this saw appears to provide a fast means of opening wooden floors for cellar pipe insertions. He states that the saw is equipped with a special file for resharpening and the necessary oils and grease for maintenance.

Have You Ordered Your "FIREGROUND LIBRARY"?

Four (4) important volumes on techniques of fire combat!

Bound in handsome case

$9.75 per set

Write to

National Fire Protection Association
60 Batterymarch Street,
Boston 10, Mass.

Helmet Tells a Tale

Reprinted from "Fire Lines," a publication of the Uniformed Firemen's Association, Local Union No. 94 of Greater New York.

THE fire is out. "The Captains and the King" have departed. Station 3-3-4071 is now a part of the Fire Department statistics for the year 1953. And Johnny Frankowitz is at St. Catherine's Hospital.

It started as a quiet evening at Engine Co. 217 on DeKalb near Lewis Avenue. The boys were finishing their coffee. A second alarm hit them for Box 4071 at Stewart and Gardiner Avenues. 217 rolled last due on the second.

It looked like a routine fire. The long "L" shaped wooden structure was crammed with war surplus material. There was no chance for a "back draft." The fire had burnt through the roof, and vented itself.

The company was ordered to take a line through an alley and advance it through a side door. Johnny Frankowitz had the nozzle. Marvin Bunch, a "proby," and Tony Kadzius backed him up on the line. Lt. Dick Ferrin was in command. When the solid stream hit the fire it was no longer routine. There was a tremendous flash and concussion . . .

Bunch, Kadzius, and Ferrin have been discharged from the hospital.

Frankowitz, who received badge No. 5-5-5-5 from the New York Fire Department is now off the critical list at St. Catherine's Hospital, Brooklyn. His helmet bearing that number (which is the notification signal of the death of a fireman, in case you haven't been studying your signals lately) now reposes in an honored spot in the Quarters of Engine Co. 217. It was literally blown from his head by the force of the explosion which hospitalized him. And the helmet shield which saved his life bears, or bearing the number 5-5-5-5, . . . all but burned off.

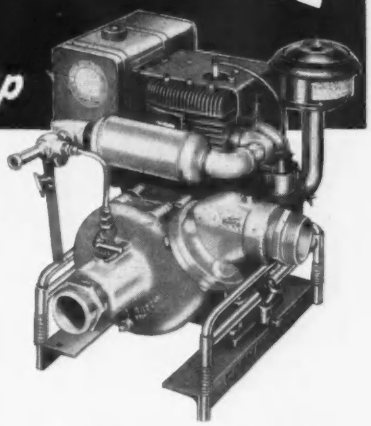
(Ed. Note — After this fire Chief Fire Marshal Martin Scott of the New York Fire Department was quoted as saying: "While no explosives were found in the building following the extinguishment of the fire, from the description of the flash received from those present at the time it would appear that magnesium, however small the amount, might have been present.

"The occupants of the building emphatically state that they had never purchased any war surplus material that consisted of magnesium, in whole or in part, nor did they buy or store any explosives or volatile liquids."

Readers interested in numerology may find significance in these other details:

Frankowitz's helmet has four "5's"; the address of the fire was 555 Johnson Avenue, Brooklyn; the fire occured on September 7, 1953 and the first alarm was transmitted at 7:53 P.M.

FOR BETTER FIRE DEFENSE
The DUAL
Fire Fighter pump



Fire departments everywhere are enthusiastic in their praise of the **"Dual Fire Fighter"** pump. It has, on numerous occasions, saved property from costly fire damage, bringing fires quickly under control in isolated localities where large truck pumpers could not reach the source of water.

The **"Dual Fire Fighter"** is especially designed for fire fighting equipment. It is used **to relay water** to the truck pumper or it will **fight fires direct.** Mounted on a truck or trailer it is an effective piece of fire fighting equipment for rural volunteer fire departments.

DUAL FIRE FIGHTER PUMP
MODEL 6201

- As a **booster pump** it will deliver 175 g.p.m. through 300 ft. of 2½ in. hose to the top of a hill 50 ft. high.
- For **fighting fire direct** it will throw 100 g.p.m. at 80 lbs. or 80 g.p.m. at 88 lbs. pressure -- Capacity sufficient to supply two 1½ in. lines.
- It **primes in 15 to 30 seconds.** It weighs only 162 lbs. Equipped with carrying handles, easily carried by two men.

Quick action of the **Dual Fire Fighter** may assist you in saving costly fire losses.

Ask for Bulletin No. 9-FD-11

The "Dual Fire Fighter" requires very little space on the pumper. Pump is integral with 4 cycle, single cylinder, air cooled engine of 8¼ H.P. Every pump is factory tested before shipping.

THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

History of Hose Coupling Standardization

(*Continued from page 18*)

have followed some local standard. Areas in New York and New Jersey adjacent to New York City have 3-in. ODM couplings with 8 threads per inch. Chicago and Detroit hose threads are only slightly off standard. In New York State, Pennsylvania and in Illinois the lack of standard couplings is perhaps most acute. Even in these states a high proportion of the fire departments use standard threads.

In 1916 the NFPA appointed a Committee on Small Hose Couplings and a standard on this subject was adopted in 1922 by NFPA, the National Board of Fire Underwriters and several other organizations. The IAFC adopted this standard in 1934. It covers threads for 1½-in. hose, booster hose and garden hose. When the NFPA standard for 1½-in. hose was adopted by the American Standard Association in 1935, it was decided by NFPA not to recommend the use of 1¼-, 2-, 3-, or 3½-in. hose couplings for fire protection service. General fire department practice has been to use 2½-in. couplings for 2- and 3-in. hose.

The NFPA standard for 1½-in. fire hose is 1.99 ODM and 9 threads per inch. This standard is used for 1½-in. fire hose by a majority of municipal fire departments and by U. S. Army and Air Corps installations. The U. S. Navy uses so-called "iron pipe thread" of 1⅞ ODM and 11½ threads per inch because of pipe-fitting considerations on shipboard. Many fire departments, particularly in coastal areas near Navy Yards, likewise use the finer pipe thread even though it is more difficult to use on the fireground.

Until recently only the 4½-in. hydrant outlet and pumper suction thread had been subject to standardization. The 4½-in. thread consists of 5¾-in. ODM and 4 threads per inch. Last year the State of California adopted a 4-in. hydrant suction thread because that size hydrant outlet is used in California. Also, the NFPA-IAFC Committee on Fire Department Equipment in cooperation with fire department equipment manufacturers prepared a suggested standard for 4-, 5- and 6-in. pumper suction threads. This has been referred to the NFPA Committee on Hydrant, Valves, and Nozzles for process as an American National Standard for pumper suction connections.

Smoke

Dense swirling gray smoke is generated by the Superior Gray Smoke Bomb. Simulates real fire smoke for training firemen, emergency and rescue squads. For indoor or outdoor use. Does not smudge clothing or walls. Safe. $7.20 per dozen.

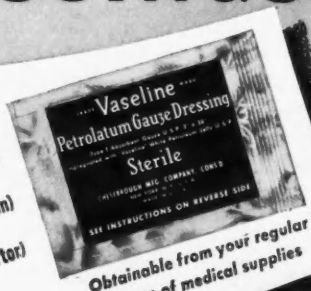
Guaranteed satisfaction or money refunded

SUPERIOR SIGNAL COMPANY
6 Colfax Street **South River, N. J.**

DEPENDABLE DRESSINGS

for FIRST AID, for EMERGENCY
for DISASTER, for DEFENSE

With a distinguished record of use by the medical services of the Armed Forces, by other governmental agencies, by hospitals, by emergency and disaster units, by industrial clinics and first-aid stations . . .



Now in three sizes:
No. 1: 3" x 36" (6 in carton)
No. 2: 3" x 18" (12 in carton)
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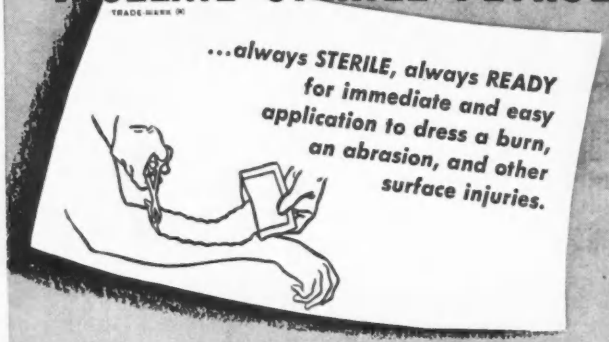
Obtainable from your regular source of medical supplies

VASELINE STERILE PETROLATUM GAUZE DRESSINGS



have been adopted by surgeons as standard procedure, by nurses as preferred matériel, by professionally-trained aid personnel as the compact, ready-made, ready-to-apply dressing of their choice.

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Specify these superior dressings in the foil-envelopes to your supplier.

VASELINE IS THE REGISTERED TRADE-MARK OF THE CHESEBROUGH MFG. CO., CONS'D

Spring Clean-Up Materials

REMOVAL of rubbish, dried vegetation and other combustible materials is essential to the success of Spring Clean-Up Campaigns. To help your fire department stress this important fire prevention effort in your community the NFPA is now distributing some eye-catching posters, folders and stickers for home owners and youngsters. The following materials are now available:

"Clean-Up" Poster — measuring 12 x 16 inches, this red and green poster has been designed for general use, such as in stores, bulletin boards of industrial plants and other places where it will be seen by the public. Price is $2.50 per hundred copies; $20.00 per thousand.

"Help Sparky Clean-Up" folder — this newly revised folder provides the home owner with a simple check list for fire safety in his home. Price — $2.00 per hundred; $17.50 per thousand.

"We Cooperate" sticker — a 3⅜ x 4⅜ in. gummed sticker in green and black. It will be especially helpful for fire fighters to distribute during inspections and fund raising campaigns. Prominent display by all property owners spotlights the additional importance of cooperating in Spring Clean-Up. Price is $1.25 per hundred; $10.00 per thousand.

"Sparky" Coloring Poster. Here's an 8½ x 11 in. replica of the Spring Clean-Up poster which youngsters can color. It is ideally suited for distribution to children in the lower grades and to youth groups, to encourage their attention to the fire prevention program. Price is only 75 cents per hundred; $6.00 per thousand.

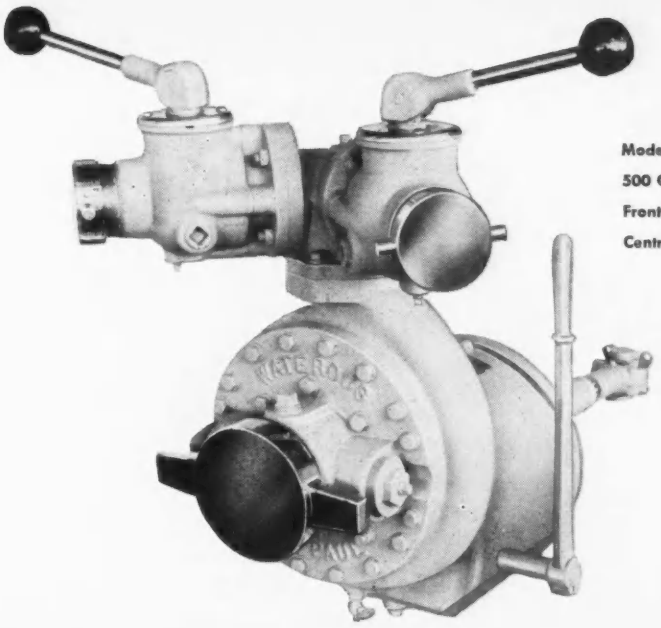
Spring Clean-Up materials may be obtained from the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Massachusetts.

Have You Ordered Your

11th Edition of the

NFPA Handbook of Fire Protection?

(Use order blank on back cover).



Model CF-3
500 GPM
Front-mounted
Centrifugal Pump

Waterous announces new front-mounted pump

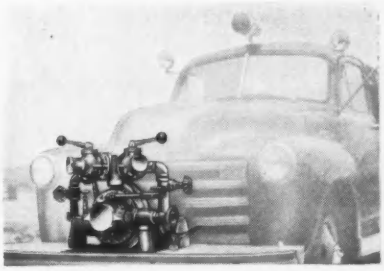
● Here's a revolutionary front-mounted fire pump . . . the WATEROUS Model CF-3.

This new pump features an "over-center" single plate, dry, automotive type clutch. This simple, easy-to-operate clutch provides *positive* engagement and disengagement *at any speed*, and virtually ends the need for adjustment.

From suction to discharge, the compact CF-3 maintains the same high quality of materials and workmanship for which WATEROUS pumps are famous. Grease-lubricated anti-friction ball bearings, completely protected from sand and water, are used throughout. The bronze impeller, hydraulically and mechanically balanced, is mounted on a stainless steel shaft. Gears are helically cut from alloy steel, hardened and ground.

Dependable cold weather operation is assured by the circulation of engine coolant through an integral pump-heating jacket.

Two 2½" hose lines may be separately controlled by two WATEROUS ball-type discharge valves which lock positively in any position. These valves



are the same as those found on the largest midship-mounted WATEROUS pumps.

The CF-3 is rated 500 GPM "Class A" or 600 GPM "Class B" with popularly priced commercial chassis.

For further information on the CF-3 or the complete line of WATEROUS fire pumps, write WATEROUS COMPANY, 42 Fillmore Ave., St. Paul, Minn.

Waterous
DEPENDABLE PUMPS
SINCE 1886

Better Hose Care--- with CIRCUL-AIR

Circul-Air Dryers have passed the Approvals Tests and are listed by the Underwriter's Laboratories, Inc., Chicago and the Canadian Standards Association.

THE AIR CONDITIONING
FIRE HOSE DRYER

Circul-Air is the patented, electrically operated hose dryer which circulates prewarmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. It's designed to lengthen hose life, improve the appearance and functional design of new fire houses, and to save floor space and hard work. NO OTHER DRYING METHOD IS SO FAST—SO ECONOMICAL—SO EASY TO USE.

ACCEPTED • APPROVED • RECOMMENDED

ACCEPTED as the standard drying medium in over 1500 fire departments — APPROVED by the leading testing laboratories — RECOMMENDED by fire hose manufacturers and Fire Chiefs "all over America."

PATENTED

If you are building, send for free copy of "Fire Station Design"

NEW HOSE DRYING MANUAL TELLS HOW TO DRY, STORE AND CONSERVE FIRE HOSE

May we send you one?

THE CIRCUL-AIR CORPORATION

575 East Milwaukee Detroit 2, Michigan

Ideal For Rural Protection

"BLITZ BUGGY" FIRE FIGHTER

- 500 Gallons of Water
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- 300 GPM Volume approved N.Y.S. Fire R.O.
- Your choice of chassis

With most modern Fog Foam and Wetting Proportioner, optional

INQUIRIES INVITED

THE BLITZ BUGGY CO., Old Forge, N. Y.

Chiefs Ask About LP Gas

THE January 20 meeting of the Massachusetts Fire Chiefs' Club at the Hotel Kenmore, Boston, featured open discussion of the use, storage, handling and distribution of liquefied petroleum gas. Members of the Chiefs' Club asked many pertinent questions of a panel consisting of New England representatives of the Liquified Petroleum Gas Association, Inc., Results of the informal dinner and discussion indicate that both the industry and fire chiefs' associations throughout the country may benefit by similar sessions in the future.

The panel consisted of Ed Johnson, Suburban UDI, Portland, Maine, who started the discussion with a brief summary of the industry's problems and activities; Lou Wenzel, Gas Incorporated, Lowell, Mass.; and Mercer Farrar, Pyrofax Gas Company, New York City. About 14 other representatives of the LPG industry also were present.

The Massachusetts Fire Chiefs' Club is headed by Chief Joseph L. Oliver of Cohasset as President, and Chief Albert Kimball of Hingham as Executive Secretary. Approximately 100 members and guests attended this meeting which gave the chiefs opportunity to hear the LPG industry's viewpoint of problems in individual communities.

The panel discussion was arranged by NFPA Gases Engineer Clark F. Jones. Other state fire chiefs' associations desiring to arrange similar meetings should write to Mr. Jones, NFPA Executive Office, 60 Batterymarch Street, Boston 10, Massachusetts.

New Face in Fire Fighting

TEANECK, New Jersey, fire fighters got a jolt recently during a dwelling fire. Someone opened a closet door and came face to face with a mummy said to be about three thousand years old. The mummy was the property of retired Bergen County Game Warden William Small who collects them as a hobby.

It was stated that about five years ago the mummy earned its keep when intruders entered the house to commit robbery. Evidence indicated that they had confronted the same "old-timer" and left empty-handed.

Membership Report

BE SURE to take advantage of the convenient order blank on the back cover of this issue. It will help you to get prompt delivery of the new 11th edition of the NFPA Handbook. Why not try to get at least one copy of the Handbook in each of your fire stations?

NFPA Welcomes:

The following fire chiefs and fire departments:

Alaska: Cordova Volunteer Fire Department, Cordova; Mt. Edgecumbe Fire Department, Mt. Edgecumbe.

Arizona: Chief Don Heatwole, Glendale Fire Department, Glendale.

Colorado: Chief C. W. Nolan, Trinidad Fire Department, Trinidad.

Indiana: Centerville Fire Department, Centerville; Pike Twp. Volunteer Fire Department, New Augusta; Chief Nicholas F. Thiery, St. John Volunteer Fire Department, St. John.

Delaware: E. I. duPont de Nemours & Co., Experimental Station, Wilmington, (Industrial Brigade).

Iowa: Chief Leslie M. Graverson, Plymouth Volunteer Fire Department, Plymouth.

Louisiana: Port Sulphur Volunteer Fire Department, Port Sulphur.

Massachusetts: Chief Ray D. Wells, Falmouth Fire Department, Falmouth; Chief Lawrence W. Winterbottom, Tisbury Fire Department, Vineyard Haven.

Minnesota: Coon Rapids Volunteer Fire Department, Anoka.

Mississippi: Gulfport Fire Department, Gulfport.

Nebraska: Dunbar Volunteer Fire Department, Dunbar.

New York: Ouaquaga Fire Company, Inc., Ouaquaga; Commissioner K. C. Townson, Rochester Department of Public Safety, Rochester; Chief Fowler Finch, Sidney Center Fire Department, Sidney Center.

North Carolina: Forest Hill Volunteer Fire Department, Winston Salem.

Ohio: Chief Claude Senseman, Butler Twp. Voluntere Fire Department, Vandalia.

Northwest Territory: (Canada): Chief F. H. Goddard, Fort Smith Fire Department, Fort Smith.

Ontario: Nelson Twp. Volunteer Fire Department, Burlington.

Pennsylvania: North Beaver Twp. Volunteer Fire Department, New Castle; First West Chester Fire Company, West Chester.

Virginia: Chief Jack L. Slagle, Virgilina Volunteer Fire Department, Virgilina.

Wisconsin: Chief Leo Meacham, Mazo Fire Department, Mazomanie.

SENSIBLE

FOR ALL YOUR HOSE CONNECTIONS

Double Female Connection

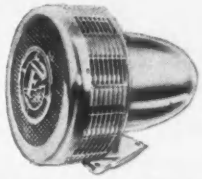
Plate 115

Always Specify By Name "Sensible"

In our line of fire fighting equipment is this double female connection which, among other points of superiority, includes the "Sensible Lug" feature. We also manufacture a double male connection with "Sensible Lugs." The curved surfaces of this modern connection enable the hose to glide easily over all obstructions, thus preventing snagging, an important safety and economy detail appreciated by those who know.

POWHATAN BRASS and IRON WORKS
RANSON, WEST VIRGINIA
Phones 93 & 94 Charles Town, West Virginia
Established 1892

NEW EQUIPMENT *Safety* DEMANDS IT...



CLASS Q SIREN

***Specify* FEDERAL**

BEACON RAY LIGHT

Your new apparatus has more speed, more essential equipment . . . it NEEDS the best possible warning signals! Be sure, protect apparatus — and *lives* — with the Federal Beacon Ray, the 360° rotating light rated best on the market, and a Federal Class "C" or "Q" siren, finest, most powerful you can buy!

Accept no substitutes! Inadequate protection is a poor way to pinch pennies! Send now for latest literature that will help you select the BEST POSSIBLE SIGNALS from the industry's most complete selections. Specify by the name . . . Federal!

FEDERAL ENTERPRISES, Inc.
Formerly: Federal Electric Company, Inc.
8717 S. STATE STREET CHICAGO 19, ILLINOIS

12 reasons why
Scott
AIR-PAK
is your best
breathing equipment
buy!

1. Ready for use in less than one minute, just turn on the valve and it's ready to go.
2. Clear visibility, cool air prevents fogging.
3. Simple to use. No practice or complicated training. Anyone can use the Air-Pak with complete confidence.
4. Fresh, cool AIR—not oxygen, for 100% protection in all breathing hazards, even explosive petroleum vapors.
5. Free and easy breathing under all conditions. No breathing restraint even during extreme exertion.
6. Triple safe regulator design proven by hundreds of thousands of hours service.
7. Positive, constant check of available air supply with dependable gage. No timer, no guesswork.
8. Full-vision face mask with diaphragm exhalation valve permits conversation.
9. The AIR-PAK is all-purpose equipment, not just rescue apparatus.
10. Economical. Operates for as little as 50c per hour. There is no waste — air that is not used may be saved for next time.
11. The AIR-PAK is completely independent of surroundings—safe in any atmosphere, in any concentration. Can even be used under water!
12. Proven. Thousands in use by business, industry and the fire service.

Write today for complete information!

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Safety Equipment Division
SCOTT AVIATION CORP.
236 ERIE STREET LANCASTER, N. Y.
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Export: Southern Oxygen Co.
15 West 57th Street, New York 19, New York

Water vs. Gasoline Fires

CAN you knock out a gasoline tank truck fire with only water fog? It is understood that foam and carbon dioxide used in sufficient quantities can extinguish such fires, but how much can be done with water? (See NFPA Standards No. 403 and 406 for techniques of fighting fires in aircraft).

For years there have been strong arguments on this basic question. Pro and con positions are taken both by members of the fire service and manufacturers' representatives of some of the best fire equipment available. There are some who contend that properly used water fog, in sufficient quantity, will take care of a fire-involved gasoline spill and also leakage from the tank truck. Others say that fog cannot do the job and that in cases where extinguishment has been reported as successful the spill fire has actually consumed most of the volatile fumes preventing any "flashover," so that extinguishment was due to "burnout" rather than to water application.

So far there has not been sufficiently recorded evidence to make either argument conclusive.

Yet in Marathon, Florida, recently the Marathon Volunteer Fire Department, headed by Chief R. O. BuShea, did a commendable job of extinguishment with water fog. On November 18, 1953, fire involved a transport truck-trailer carrying 5400 gallons of gasoline. A tire had collapsed while the truck was in motion and the truck had travelled 1500 feet before the driver could bring it to a halt. The tire had ignited, and before the driver could use his CO_2 extinguisher, fire had spread into the discharge and pump compartment. This was 15 miles from the Marathon fire station and 34 minutes passed before the Department received the alarm.

Two weeks previously Marathon had placed in service a new American-LaFrance 500 gpm pumper with a 500 gallon tank. Two booster lines and two 1½-in. lines were pre-connected on this vehicle, which also was equipped with a Hale FZZ portable pump.

When this truck rolled in, fire fighters used two 150-ft. lines of 1½-in. hose with two Alfcospray 1½-in. fog nozzles to hit the fire beneath the truck and cool the tank. The nozzles were set for a 60 degree fog pattern, discharging 75 gpm with a nozzle pressure of about 125 lbs. Pump pressure was maintained at 150 lbs. After 24 minutes of this application the fog was directed to the vents on top of the truck and within five minutes the fire was completely extinguished. The 500 gallon water supply in the pump tank was used within the first five minutes of fire fighting, after which water at 80 lbs. pressure was supplied to the tank by the portable pump which was drafting from a nearby water source. When this change was made, operating pressure of the larger pump had to be reduced to 125 pounds.

When the fire was out about 3,500 gallons of gasoline remained in the transport. This was flushed into a nearby bay.

THE editors of FIREMEN would appreciate hearing from any readers who have had similar experiences with gasoline tank truck fires. If you have successfully used water alone to put out such a fire, why not report the details? Here are the items to mention in such a report:

Amount of gasoline in tank truck when fire started.

Amount of gasoline after fire was extinguished.

Was there gasoline in the spill area after extinguishment?

Amount of water used and how applied, i.e., types of nozzles, sizes of nozzles and hose, nozzle pressures, engine pressures and length and number of lines.

Describe method of attack, that is, how fire fighters moved in on the fire; whether they were protected by hose streams; how was water applied in ground sweeping and on the involved tank?

Was the involved tank truck equipped with proper venting, baffles, and other approved construction features?

Chicago Pays Tribute

FAMILIES of the five firemen who were killed in the collapse of the Reliance Hotel on December 17, (see February, 1954 FIREMEN), have been made beneficiaries of a special fund. According to the January 30 issue of *Editor and Publisher* a total of $35,782.47 was raised by the *Chicago American*.

Long range, solid cone of Rockwood WaterFOG snuffs out fire.

"Little Mo" knocks 'em down

He *likes* to go to blazes.

"Little Mo" — a small fire truck that's packed to the hilt with Rockwood fire-fighting equipment — streaks to fires, knocks 'em down and quenches them in seconds. Can be operated by one man, if necessary!

In the test above, fuel in a pit under the tank cars was set on fire — and more fuel poured on top of the cars from pipes. This, too, was ignited and the blaze given a minute's start. In rushed "Little Mo" — and out went the fire in 45 seconds, choked off by Rockwood WaterFOG from Rockwood's Remote Manual Control Turret. What's more, 10 inches of water still remained in "Little Mo's" 200-gallon booster tank, after the fire was out.

It's Loaded! "Little Mo's" equipment includes: 4 stage centrifugal pump with electric primer, 200-gallon booster tank, Rockwood Dual Suction Proportioning System for FOAM and "Wet", Rockwood Remote Manual Control Turret controlled from within cab, Rockwood Ground Sweep Nozzles, Rockwood Remote Control Ball Valves, 2 Hannay reels with 200 feet of high pressure hose with new Rockwood High Pressure Handline Nozzle on each reel.

Thanks to Rockwood portable fire-fighting equipment, even a small truck like "Little Mo" can battle fires with powerful efficiency. The Turret Nozzle, alone, discharges solid water stream, WaterFOG, FogFOAM, solid FOAM, "Wet" solid water, and "Wet" WaterFOG! Rockwood engineers water to cut fire losses.

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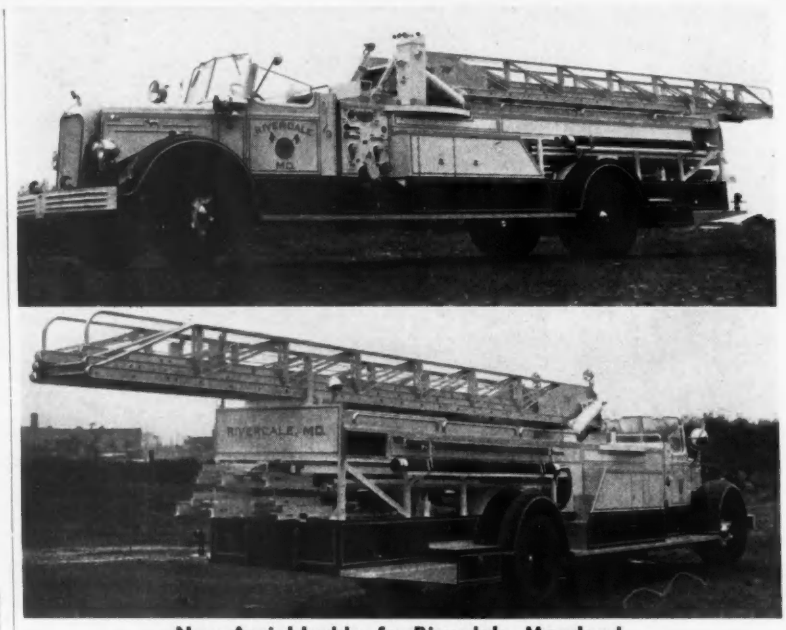

New Aerial Ladder for Riverdale, Maryland

New quintuple combination 75-ft. aerial ladder with 750 gpm pump delivered to Riverdale by Mack Motor Truck Corp. The unit has two 75-gallon water tanks with a rear mounted hose reel. The truck carries 200 ft. of wooden ground ladders and above these on each side of the aerial are extensive compartments. The truck has air brakes, is painted a striking black and white rather than a conventional red. The Maryland State seal is hand painted on the doors.

Dates to Remember

Iowa: The 30th Iowa State Fire School will be held in Ames, Iowa on the campus of Iowa State College in Exhibit Hall May 18–21. Write to: Mark Brosier, Supervisor of Firemanship Training, Engineering Extension Service, 110 Marston Hall, Ames, Iowa.

Maryland: The Third Annual Short Course for Fire Inspectors will be held at the University of Maryland, College Park, April 6–9. Two Regional Schools will also be conducted; one for Western Maryland on May 1 and 2, and one for Eastern Maryland on May 8 and 9.

Five pump schools will be held at the University. Factory representatives will be present to describe operation and maintenance of the following makes of pumps on these dates: May 21–22 — Hale; May 28–29 — Waterous; June 4, 5 — American LaFrance; June 11, 12 — Seagrave; and June 18, 19 — American Marsh.

The 21st Annual Short Course for Maryland firemen will be held at the University September 7–10. Further information may be obtained from Robert C. Byrus, Director, Fire Service Extension, University of Maryland.

Minnesota: The 1954 Annual Minnesota State Fire School will be held April 26–30 at the University of Minnesota, Agricultural Institute Farm Campus St. Paul 1 Minn. Inquiries should be directed to Leonard C. Lund Deputy Commissioner, Fire Marshal Department, Saint Paul 1, Minnesota.

Ohio: The Maumee Valley Free Fire School will be held in Napoleon, Ohio May 22–23. Write to Secretary Earl Campbell, Northwestern Ohio Volunteer Firemen's Association, Napoleon, Ohio, for further information.

Texas: The 1954 Conference of the International Association of Fire Chiefs will be held in Houston, Texas, October 18–21. Chief T. J. Powers of the Houston Fire Department will be Host Chief.

"He's a darling — he's a fireman"

Cartoon by Dedini.
— Reproduced courtesy Esquire magazine

CAPTAIN JAMES FLOWERS
Laurel Fire Department
Laurel, Mississippi

"Here's why I say... thanks a million for a Fireman's Helmet that CAN TAKE IT!"

1. "Seconds after the alarm came in, we were on the truck and roaring out of the station.

2. "It was a concrete block theater building. All we could see were flames and smoke, and the heat was terrific. We rolled into action.

3. "I'd been manning a hose from a ladder position for about 5 minutes when the Chief yelled to come down, on the double.

4. "I just made the ground when the wall gave way. The air was filled with concrete—all of it headin' my way.

5. "I made a run for it, but a falling block crashed into my helmet, sent me sprawling. More followed, hitting my legs, back, feet.

6. "When it was over, my nose was broken, and I was plenty bruised. But thanks to your helmet, I was saved from serious injury, or death."

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AND BI-LATERAL was *first* to furnish free fire hose record cards to fire departments. They are *still* available — send for a supply!

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Philadelphia Wins Grand Award

Philadelphia, Pennsylvania, won the Grand Award for U.S. fire departments participating in the Fire Prevention Week Contest sponsored by the National Fire Protection Association. (See FIREMEN for February, 1954). On February 15 Charles S. Morgan, NFPA Assistant General Manager, paid tribute to Philadelphia's "Task Force" for fire prevention and presented the winning plaque to Mayor Clark and other civic leaders. Group participating in the presentation included (left to right): Paul B. Hartenstein, former Deputy Fire Commissioner and former chairman of Philadelphia's Citizens' Council on Fire Prevention; Charles S. Morgan; Fire Commissioner Frank McNamee; Mayor Joseph Clark; and Robert Daum, Chairman of the Fire Prevention Committee of the Citizens' Council.

Do You Have Your "Fireground Library"?

DURING the past few months there has been a very strong demand for sets of the NFPA "Fireground Library" which was first announced in the October, 1953, issue of FIREMEN. Many orders were from wives of fire fighters who requested the sets for holiday gifts. Other individuals and fire companies throughout the United States and Canada have requested the 4-volume set which describes important evolutions and procedures essential to successful fire combat.

Recently a request for a number of these sets came from the Guarantee Mutual Insurance Company of Springfield, Ohio. In the January issue of its monthly bulletin, "The Policy," that concern had described the "Fireground Library" and recommended that its agents present sets to their local fire department as gifts. There was a favorable response to the initial announcement, which will be followed by a reminder notice in the March bulletin.

The "Fireground Library" consists of four volumes, including "Attacking and Extinguishing Interior Fires" and "Fire Fighting Tactics," (both by Lloyd Layman); "Operating Fire Department Pumpers"; and "Handling Hose and Ladders." All of the volumes are 5⅞ x 8⅝ in. in size, cloth bound, and generously illustrated. When purchased as separate volumes the four books cost a total of $13.50, but when purchased as the "Fireground Library" the set is priced at only $9.75. The books are contained in a sturdy casing which makes a convenient package for desk, drawer or the glove compartment of a car.

The sets may be obtained from the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Massachusetts.

●

Standard for Portable Pumps

NFPA Standard No. 191, "Portable Pumping Units for Fire Department Service" has been adopted and is now ready for distribution. It recommends standard features of portable pumps such as pumping capacity, weight, size, a centrifugal pump and fittings which are minimum requirements for satisfactory fire service operation. Copies may be obtained for 25 cents each from the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Massachusetts.

"The solid stream will continue to have a limited degree of usefulness but it is destined to be the secondary form of application in controlling and extinguishing fire. Progress in the tactical employment of water on the fire-ground demands that the primary form of application be that of finely divided particles."

"Had we kept to the old method of lots of water and straight streams we would have used barrels and barrels of water and perhaps would have lost the entire house. While we are not telling anyone what to use, we are firm believers that the fellows talking about fog know their fire-fighting and hope that more fire departments give it a try."

These are your words about water-fog fire fighting

*Actual statements by fire chiefs

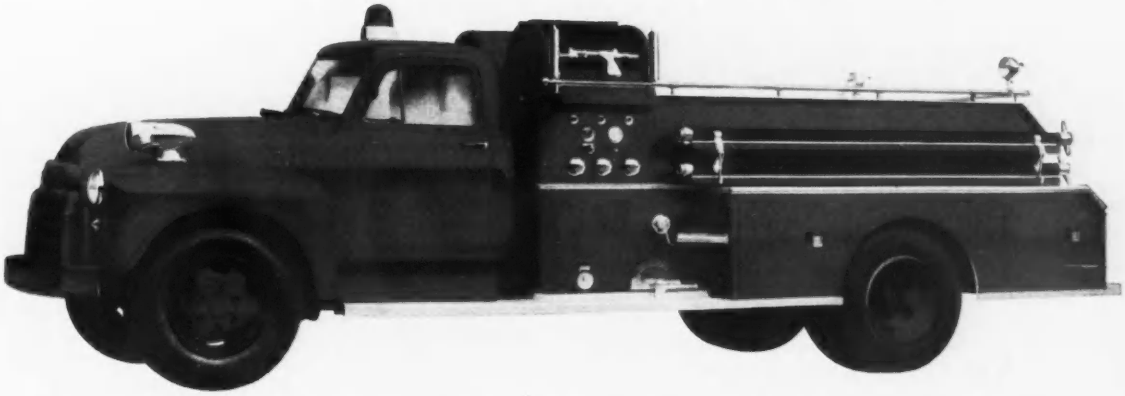
"This type of equipment (water-fog) is coming into common use in practically all of our fire departments."

"In general, the high-pressure nozzles on ¾ inch high-pressure hose reduced the temperatures much faster than the 1½ inch nozzles employed, and which were discharging at approximately the same GPM."

"We were called out to a house that was one mass of flames on the inside. The only exit for the smoke was via a fireplace chimney. Upon arriving three firemen were present. I, being the only man who had experience, set the truck, grabbed the nozzle, rushed up to the house, put the gun through one pane of glass with full fog. All flame went out as soon as the fog hit; then we opened the door and went in to make sure no more fire would ignite, using a total of 25 gallons of water."

*Sources available upon request

BUT here is the last word in high-pressure fog fire fighting



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Keeping fire hose "inspection-white" is possible with Bi-Kleen, a new product of *Bi-Lateral Fire Hose Co.*, 20 N. Wacker Drive, Chicago 6, Ill. Write them for facts. . . . The success story of high-pressure fog fire fighting can be obtained from *John Bean Division*, Dept. 127, Lansing, Michigan. . . . For economical rural fire protection, before you buy apparatus, check with *The Blitz Buggy Co.*, Old Forge, New York. . . . Every fire department should have the Cairns catalog. It's free for the asking at *Cairns & Bro., Inc.*, Allwood, Clifton, N. J. . . . Dependable dressings for first aid are Vaseline sterile petrolatum gauze dressings made by *Chesebrough Mfg., Co.*, Cons'd., New York 4, N. Y.

How to put out more fire with less water with new automatic spray sprinklers is described in free booklet available from *Grinnell Co., Inc.*, 261 West Exchange St., Providence, R. I. . . . Do you have a copy of the Circul-Air Hose Drying Manual? Write for free copy to *Circul-Air Corp.*, 575 E. Milwaukee St., Detroit 2, Michigan . . . The new Pocketaire oxygen breathing apparatus for fire fighters is described in booklet put out by the *Cycle-Flo Co.*, 104 Gulf St., Milford, Conn. . . . Complete line of Champion Fire apparatus, fire pumps and many other items for fire department use are colorfully described in 44-page booklet. Write to *W. S. Darley & Co.*, Chicago 12, Illinois.

Every fire department should have "The Economy of a Fire Alarm System" 24-page booklet just announced by *Gamewell Co.*, Dept. FE, Newton Upper Falls 64, Mass. . . . Looking for a portable fire pump? Before you buy, get the Dual Fire Fighter Pump story. Write for Bulletin No. 9-FD-11 from *Gorman-Rupp Company*, Mansfield, Ohio. . . . Whatever your climate and needs, check with Midwestern Mfg. Co. for bunker suits, pants and coats. Free samples of material and literature mailed on request to *Midwestern Mfg. Co.*, Mackinaw, Illinois . . . Need streamlined firemen's helmets that can "take it"? Write to *Mine Safety Appliances Co.*, Pittsburgh 8, Pa., for Bulletin No. DX-8 for complete details.

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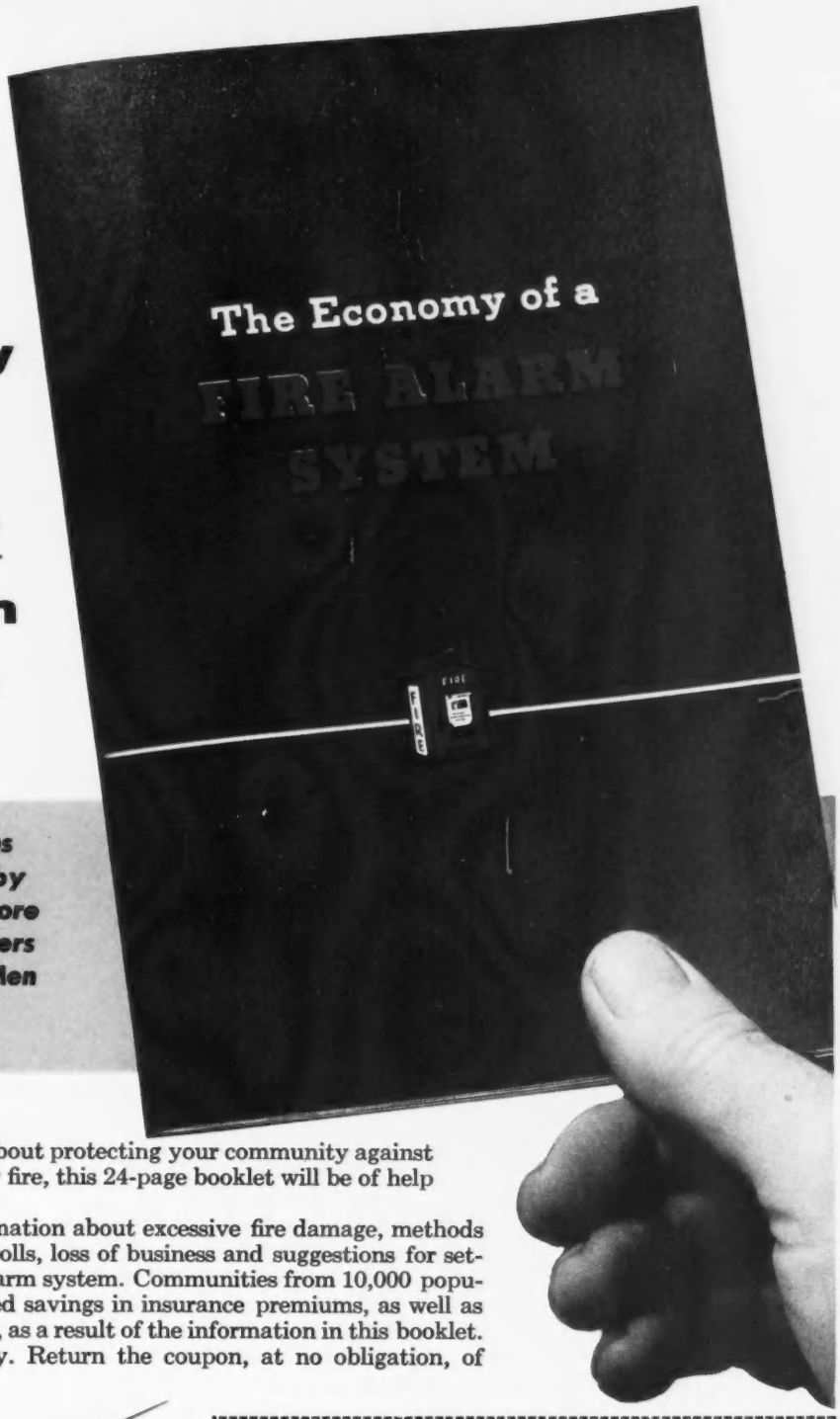

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